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CLINICAL COLLECTIONS

AND

OBSERVATIONS IN SURGERY,

MADE DURING AN ATTENDANCE ON THE

SURGICAL PRACTICE OF ST. BARTHOLOMEW'S HOSPITAL.

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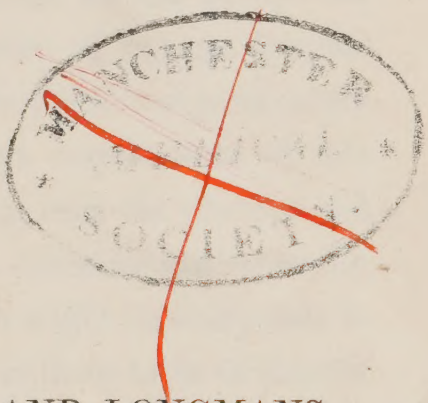
FELLOW OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND;

LATE HOUSE-SURGEON AT ST. BARTHOLOMEW'S HOSPITAL.



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MANCHESTER MEDICAL SOCIETY.

PREFACE.

The substance of the following pages was collected during an attendance on the Surgical Practice of Saint Bartholomew's Hospital, extending over nine years—from 1835 to 1844.

During this period a large mass of notes, embracing the most varied matters, and collected from the most widely differing sources, was gradually gathered together. They were the notes of a student who was anxious to learn his profession practically; so that much was recorded simply because it related to matters of daily application, much because it attracted attention from its rarity, and much, again, hard of explanation at the time, in the hope that more extended observation might shew its real value, and remove its original difficulties.

Materials thus collected, in so wide a field of observation, and with such kind assistance and encouragement as the author has constantly received, recording the experience of a large hospital on common though important subjects, the occasional peculiarities of ordinary disease, and the post-mortem examinations of rare cases, as well as much that had been drawn from the practice and instruction of those who had enjoyed most extensive experience for many years, seemed to present facts which might be acceptable to many; and now that the portion which was likely to be of interest to others besides himself has gradually grown and acquired a size which appeared to justify the author in publishing it, it is here presented to the reader in the form of notes, with such connecting description as may serve to explain the subjects more fully.

The first fourteen chapters relate to various subjects; the last six contain the substance of an Essay on the Comparative Merits of Mercury and Iodine in the Treatment of Syphilis, to which the Jacksonian Prize of the Royal College of Surgeons for 1842 was awarded. The chief object in this latter part is to give an account of the treatment of Syphilis at St. Bartholomew's Hospital, where nine wards are exclusively devoted to the treatment of venereal diseases. The number of cases related is considerable, and the context is often a relation or abstract of other cases. In all, however, brevity has been studied, either by detailing only the part of the case bearing on the point, or by simply giving those additional particulars which a fair recital of the case required.

Let it, however, be borne in mind, that the object of the following pages is not to give a detailed account of diseases, or a complete description of any one surgical subject, but to present a series of observations on particular points, which, either from their rarity or other circumstances have not been generally noticed, or which, by the cases here related, have been rendered more clear, and at the same time to relate the success of certain modes of treatment of important classes of disease from the observation of a large number of cases. The work claims to be no more than its title expresses,—collections made as the different subjects of observation presented themselves; and if the sudden transition from one subject to another should strike the reader as harsh, or the brevity with which any points are alluded to should seem to imply an omission, such faults will probably be pardoned, if the apparently unconnected details illustrate a great practical truth, or the small space allotted to an important subject contains something new on points where others have already so copiously written.

In offering the volume to the public, there is a debt of gratitude due to those whose kindness has rendered the daily labour of

the author a constant and increasing pleasure, and beyond all others to Dr. Latham. I trust that these pages may shew that his advice and instructions have not been bestowed in vain; I would they had been as ably followed as they have been always freely and sincerely given. To the Medical and Surgical Officers of St. Bartholomew's Hospital the author's thanks are due, and most especially to Mr. Lawrence and Mr. Stanley: from an attendance on the practice and clinical lectures of Mr. Lawrence the principal part has been learned, whilst the remaining portion has been chiefly derived from the instruction and wards of Mr. Stanley, whose constant kindness in affording every means of information can be but imperfectly appreciated from the brief narrations in the following pages.

High Street, Oxford,
August, 1846.

CONTENTS.

PAGE

Chap. I.—On Hernia.

Account of patients admitted, of patients operated on twice, of the date of strangulation, and of the general condition of patients on admission. Employment of the taxis simply, or with other means. Circumstances occurring in the operation, before and after opening the sac. Fluid in the sac, its quantity as influencing the strangulation; its quality, whether transparent, bloody, or brown. Absence of fluid in the sac. Cases of patients with hernia and hernial symptoms suffering from other ailments. Cases of strangulation by the omentum. Treatment of the omentum 1

Chap. II.—On Fractures of the Ribs, Lower Jaw, and Pelvis.

Fracture of the ribs; crepitus of fracture on auscultation. Admission of air into the lung on the injured side. Affections of the lung and pleura after fracture. Venesection on the occurrence of fracture. Injuries to the chest in children; case of simple compression of the chest, case of ruptured bronchus in a child, without fracture, followed by escape of air into the pleura, and by pleurisy. Case of air remaining in the pleura for many weeks without any bad consequence. Injuries to the lung from fracture. Abscess round broken rib. Cases of lacerated lung. Case of sudden effusion of blood into the pleura (from fracture?) followed by recovery. Dissection of a case of effusion into the pleura, eighteen years afterwards.

Fracture of the lower jaw. Affection of mouth, resembling salivation. Fracture at the mesial line; absence of laceration of the gum. Fracture of the lower jaw followed by amaurosis.

Fracture of the Pelvis. Strength of the pelvis in one direction. Cause of laceration of the perineum 24

PAGE

CHAP. III.—Injuries of the Bones of the Lower Extremities.

Reduction of dislocation on ischiatic notch, sometimes unexpectedly easy. Cases of dislocated hip in young children. Case of irreducible dislocation of the hip, and of hip remarkably easy of dislocation and reduction, both probably from fracture. Loss of power in the hip from simple blows.

Fracture of the neck of femur. Advantages of the long splint. Fracture of femur in the lower third, and its result, even when running into the knee. Case of laceration of the ligamentum patellæ. Dislocation of knee. Unreduced dislocation of knee. Dissection of a dislocated knee. Fracture of the bones of the leg, of the fibula, and of the head of the tibia. Fractures, their displacement, want of crepitus, and accompanying pain. Consequences of fracture arising at remote periods 40

CHAP. IV.—Injuries of the Bones of the Upper Extremity.

Alteration in length of the dislocated humerus. Advantage of extension upwards in some cases. Dissection of an unreduced dislocation on the inner side of the coracoid process. Case of compound dislocation of the humerus into the axilla. Case of laceration of the circumflex nerve from fracture. Fracture of the clavicle. Union of clavicle in peculiar position. Cases of dislocated thumb. Injury to elbow-joint. Severe compound fractures of arm and leg 58

CHAP. V.—Injuries of the Head and Spine.

Abscess of brain after injury. Discharge of fluid from the ear after fracture or injuries of the head. Indentation of the skull in children. Fracture of the base of the skull, with remarkable deficiency of symptoms. Slow inflammatory changes occurring in the skull of a child after fracture, resembling hydrocephalus. Fractured base and apoplectic effusion. Bleeding in injuries of the head. Dislocation of the vertebræ at the junction of the dorsal and lumbar portions. Reason of this part yielding. Freedom from paralysis in these cases . 70

CHAP. VI.—Bursal Tumors.

Treatment by applications, incision, and removal. Suppuration at times only slightly painful. Bursæ about hand and foot. Case of large bursa of wrist opened and cured. Bursa under semi-membranosus muscle, with dissection of a case 89

PAGE

CHAP. VII. — On certain circumstances influencing the Convalescence of Patients.

Frequency of disease in patients requiring operations or suffering from accidents. Influence of drunkenness, organic disease, and want, in rendering operations and injuries in such cases fatal. Fatal cases of delirium tremens. Occasional peculiarity of symptoms in injuries of the head of persons mentally affected, as well as in habitually intemperate persons. Occurrence of tubercle in persons suffering from fistula in ano, as well as in persons affected with disease of the spine . . 95

CHAP. VIII.—Affections of Joints.

Occasional severity of pain in inflammation of the synovial membrane. Disease lingering in one joint after rheumatism, its destructive action and occasional want of marked symytoms. Sudden acute disease of joints in healthy persons, terminating in anchylosis without suppuration. Disease affecting the fibrous structure of a joint alone. Disease of the hip of a child suddenly followed by dislocation, apparently without ulceration of the joint. Disease of the hip suddenly fatal with cerebral symptoms. Anchylosis of the hip. Distension of the knee with fluid. Case of loose cartilage. Lumbar abscess containing an unusual quantity of matter. Affection of the spine, in which the symptoms partly resembled those arising from disease and partly those from injury. Dissections of a contracted finger, of a case of talipes varus, and of contracted toes 111

CHAP. IX.—On Amputations.

Amputation of fingers. Dissection of an old stump, where the end of the metacarpal bone was left. Effects of pressure on the fingers. Amputation at the wrist and just above it. Flap and circular amputations of thigh. Division of vessels. Difference of degree of retraction of the vessels. Retraction of integuments spontaneously subsiding. Peculiarity of the stumps of the femur. Injury to vessels in the leg. Mobility of fibula. Cicatrix on tibia after flap amputation. Calcareous arteries often unite well, and attended with little inconvenience in some cases. Occurrence of phlebitis and cerebral affection after amputation. Division of tarsus. Removal of metatarsal bone. Dissection of three ulcerated stumps, from amputation, from frost-bite, and from injury . 128

PAGE

CHAP. X.—Affections and Injuries of Arteries and Veins.

Dilatation of the common carotid artery. Rupture of the femoral artery from a blow, unaccompanied by other injury. Aneurism of the femoral artery from a wound, with peculiar auscultatory signs. Injuries of the brachial, radial, ulnar, and posterior tibial arteries. Ecchymosis occurring spontaneously, also recurring without apparent cause. Course of the obturatrix artery and point of origin of the arteria profunda femoris 141

CHAP. XI.—Affections of the Urinary and Genital Organs.

Hydrocele. Employment of wine, iodine, and sulphate of zinc, for its cure. Cure from incision and simple puncture. Hydroceles cured by injection, but recurring in two, six, and seven years. Hæmatocele apparently commencing as such. The fluid of hæmatocele. Hæmatocele cured by cold applications. Source of the blood in hæmatocele. Retention of urine in women after fracture, and from retained menstrual secretion. Case of hæmaturia of an obscure nature. Bladder suddenly recovering its power in paraplegia. Urethra ulcerating during convalescence from fever. Malignant disease of the testis, fatal in a few months, or lasting for seven years. Danger of incisions in the middle of the perinæum. Unusual course of the artery of the bulb. Calculi lodged in the urethra. Stone drawn out of the bladder by the sound 158

CHAP. XII.—Affections of Mouth and Trachea.

Salivary calculus. Removal of tonsils. Abscess behind the pharynx. Cut throat. Nourishment by enemata after wounds of the throat. Cases of difficulty connected with the healing of the wound. Suffocation of adults and children from vomiting and from foreign bodies in the trachea. Space between the cricoid cartilage and thyroid isthmus. Enlarged subclavian artery and bronchocele. Peculiar distribution of suprascapular veins 173

CHAP. XIII.—Abscesses, &c.

Difficulty of diagnosis in abscesses on the abdomen. Suppuration on abdominal parietes after parturition. Case of abscess in iliac fossa, and recovery. Case of abscess, connected with the cæcum, dissecting out the cellular tissue of the loins. Case of abscess in the abdominal walls,

PAGE

communicating with both the digestive and urinary organs; patient surviving for seven months.

Suppuration in the hand. Degree of danger to life in some forms of inflamed hand. Probability of affection of the joints or tendons. Peculiar fluctuation found in the arm. Delirium from matter amongst the muscles. Cases of inflammatory œdema of hand. Two cases of rapid mortification of one hand, occurring in persons labouring under gout, or obscure rheumatic pains.

Mortification of the skin of the groin. Abscesses with ulcerated legs. Carbuncle running its own course. Poisoning with mercurial precipitate 185

CHAP. XIV.—Malignant Disease.

Cysts in the breast, with cancerous base. Cancer of the axillary glands. Malignant tumors in the neck, commencing like enlarged glands. Cancer of the eye. Unusual changes in the tongue . . . 201

CHAP. XV.—On Syphilis.

Employment of mercury in simple and indurated primary ulcers . 207

CHAP. XVI.—On Syphilis.

Employment of mercury in phagedænic sores, of iodine in primary ulcerations, and of mercury and iodine in affections of the absorbent glands, warts, and condylomata 218

CHAP. XVII.—On Syphilis.

Employment of mercury and iodine in venereal affections of the skin . 235

CHAP. XVIII.—On Syphilis.

Employment of mercury and iodine in venereal affections of the throat, larynx, tongue, and testicle 248

PAGE

CHAP. XIX.—On Syphilis.

Employment of mercury and iodine in venereal affections of the periosteum, joints, eye, ear, and nail 263

CHAP. XX.—On Syphilis.

General summary of the results derived from the employment of mercury and iodine in the treatment of venereal diseases 279

CLINICAL COLLECTIONS,

&c.

MANCHESTER MEDICAL SOCIETY.

CHAPTER I.

ON HERNIA.

Account of patients admitted, of patients operated on twice, of the date of strangulation, and of the general condition on admission. Employment of the taxis simply, or with other means. Circumstances occurring in the operation, before and after opening the sac. Fluid in the sac; its quantity as influencing the strangulation; its quality, whether transparent, brown, or bloody; its absence. Cases of patients with hernia and hernial symptoms suffering from other ailments. Cases of strangulation by the omentum. Treatment of the omentum.

Very few patients with strangulated hernia apply for relief at first to St. Bartholomew's Hospital, but the generality are attended by the medical practitioner of their neighbourhood, or even by two or three different persons. The proportion of patients operated on, as compared with those who are admitted, is thus large; yet many apply and have their ruptures reduced. The same patient often has his rupture reduced once or twice, or even three times; but it is more common for the second strangulation to need an operation, than to be reduced by the taxis. Of those which are returned, the majority are cases of inguinal hernia, of moderate size, not long down, and not previously handled. The number of cases of femoral hernia returned is very much less than that of inguinal. No class of cases varies more than these, in apparently accidental circumstances; thus many cases happen together, many fatal cases occur together, and many successful operations occur consecutively; yet it is very rare for two cases to be exactly alike in every

respect. The difficulties of the cases, however, are very similar, and the difference is oftener in matters of curiosity rather than in those of absolute practical interest. Patients admitted for strangulated hernia, when put to bed, are sometimes found to have no rupture at all, and not even any thing the matter with them in any way; whilst at other times they have some other disease, or hernia complicated with some other ailment. This class of cases, in which the patient is a gainer, is counterbalanced however by another set, and that a most important class, in which the patient is unaware of an existing rupture, and, by ascribing its symptoms to some other cause, runs a very serious risk.

Amongst patients admitted for hernia the following cases occurred :—

1. A young woman was admitted under Mr. Skey's care; she talked about pain, vomiting, and constipation, which had not been relieved by medicines taken by her, and pointed to the situation of the internal inguinal ring. Her complaints were all a matter of description; nothing could be found; and a dose of senna mixture shewed that she had deceived herself, or that others had alarmed her unjustly.

2. Hydrocele, hernia humoralis, and hydrocele of the cord.

3. Hernia partly reduced, but still strangulated.

4. Hernia reducible, but symptoms arising from internal strangulation.

5. Perforation of the intestines in the abdomen, with the secretion of peritonitis filling a hernial sac.

6. A small hernia in the canal, with the secretion of fluid into the tunica vaginalis, resembling in appearance hydrocele.

Within the last few years five patients have been admitted for strangulated hernia, who had been operated on previously: four again suffering strangulation in the same rupture, and one suffering from rupture of the opposite side. Of these five patients, the one having a hernia on the opposite side died from peritonitis; one of the patients with strangulation on the same side, died from the omentum pressing the bowels high up; and the other three recovered, one being about 70, one 36, and the third about 35 years of age.

In four of these five cases the appearances were noted :—

A woman, about 35 years of age, was operated on by Mr. Lawrence for a strangulated femoral hernia. The sac contained bowel and omentum; a considerable quantity of the latter was removed, and some more sloughed after operation. In about a year this woman was again admitted, and again operated on by Mr. Lawrence. The rupture again contained bowel, and notwithstanding the large mass which had been removed by operation and sloughing, the mass of omentum was still very large indeed. She recovered well.

A man, aged about 40, was operated on by Mr. Skey for an inguinal hernia, consisting of bowel and a mass of omentum; the omentum was left. This man returned in eighteen months with somewhat obscure symptoms, and died. After death the sac was found to contain a small portion of bowel high up in the neck of the sac, whilst, from the arch of the stomach to the scrotal cicatrix, to which the omentum was united, the omentum descended like a cord, tightly compressing the bowels against the back of the abdomen and hernial sac.

A woman, about 67, was operated on by Mr. Skey for hernia of the right side, having had the left side operated on about twenty months previously by Mr. Vincent. She died. The hernial sac of the left side contained a small portion of reducible omentum.

A man, about 40, was operated on by Mr. Stanley for hernia, and again by Mr. Lawrence four years afterwards. The sac contained bowel and adherent omentum, which latter was left. The man got well.

Amongst the number of patients in a large hospital who have hernia in addition to their other ailments, it is very rare indeed to find one who, having been ruptured for many years, has been really cured. Many leave off the truss, and only suffer from the rupture occasionally; whilst others have a constant degree of hardness or swelling, the difference perhaps depending on the absence or presence of a portion of omentum.

In all the four cases just related, omentum was found in the sac on the second operation, and there was no appearance of any probability of closure from it. In the first case the omentum sloughed, and the sac inflamed, yet no closure of the sac occurred,

and it even seemed that the omentum in the sac had gone on growing in fatness as readily as if it had been in the abdomen. However adherent the omentum might be in any one of these cases to the fundus or the sides of the sac, it was free at its neck.

In the cases where the omentum exercised a prejudicial influence on the bowels contained in the abdomen, it was either attached by one broad, or by one or two narrow adhesions, near the neck of the sac, or in the sac itself, and assumed a more or less cord-like form, excepting, perhaps, just the part between the ring and fundus of the sac, which, by its enlargement, as compared with the portion in the ring, resembled the tassel of a bell-rope. This appeared to be by far the most serious form of protrusion of omentum, whilst the broad fatty masses adherent to many parts of the sac at once, though complicating the operation, appeared generally to produce all their mischief in the sac, and thus within reach.

Patients almost always lay aside their truss at night, and generally with impunity. In three cases, however, strangulation occurred whilst the patient was in bed, with the truss off.

The patients admitted have often had the rupture strangulated for a considerable period. Of thirty patients operated on, the following are the periods which had elapsed between the strangulation of the hernia and the admission of the patient :—

In 7 cases not more than thirteen hours had elapsed.
2 cases were operated on during the 1st day.
9 . . . . . 2d day.
5 . . . . . 3d day.
1 . . . . . 4th day.
2 . . . . . 5th day.
3 . . . . . 7th day.
1 . . . . . 15th day.

Of these same thirty cases which were operated on at these periods, the taxis had been tried already before admission in six, by one medical man, and in two cases by two. Such were some of the serious drawbacks in this class of cases, where an early operation and as little handling as possible before operation have been always found so advantageous.

The circumstances just mentioned are connected as much with

the medical treatment as with the condition of the patient. The habits and accidental condition of patients with hernia, are sometimes, however, very disadvantageous to any serious operation. Of three cases of umbilical hernia, one laboured under dropsy, and another was in her third month of pregnancy. Of the other cases, one woman, though young, appeared so utterly broken down by want and poverty, as to appear hardly sensible of her condition. In one case the operation was followed by delirium tremens, and the habits of another man were described as consisting in living on rum and porter for weeks together. It is surely not to be wondered at, that in cases of such a nature, and admitted at so late a period, the average mortality after a great surgical operation should be found so great.

When a patient with strangulated hernia is admitted, it is generally pretty clear, from the general features of the case, whether any delay can be allowed, as well as whether the taxis may be regularly applied. There is no doubt as little handling as possible is an excellent thing, if the patient has to be operated on; but reduction compared with an operation is such an advantage, that it is generally tried.

The taxis having been tried once, is a great inducement not to try it again. If it has been done once well, there is little to be gained by it; if it has been tried often, and in a forcible manner, it is not a very encouraging circumstance, or an inducement to repeat it.

There are two classes of patients who admit of no delay, if the rupture does not seem likely to be reduced at once.

Patients with recent small ruptures, which are intensely painful when handled.

Old worn-out people, or middle-aged persons with old constitutions, who look very ill, have moderate-sized ruptures and a white clammy tongue, with very few and often mild symptoms. These persons, as soon as they have symptoms, often sink most rapidly.

In the great majority of cases, an attempt at reduction is made before operating. One case differs so much from another, that a general rule can hardly be drawn, as to the propriety of attempting the reduction or not. Certain cases might be placed at one end of a scale, as requiring an immediate operation, and others, in

which some delay might well be allowed; yet every now and then a tight small femoral hernia is reduced, whilst a flaccid inguinal rupture requires an operation; and a case that promises well in every way dies, whilst a patient with a mortified hole in the bowel, or with peritonitis at the time of operation, gets quite well. It might almost be said, that on the one hand there is no one symptom, short of commencing collapse, which absolutely precludes all hope of success from an operation for hernia, but that at other times death has occurred when every favourable sign was present, and no bad symptom of any kind existed.

The means employed with the taxis have been the tobacco enema, ice, and purgative clysters; venesection and the warm bath. A young man, with a recently strangulated inguinal hernia, refused to have any operation performed: a tobacco clyster was given without any benefit; the warm bath, bleeding and purgatives, having been already tried. Every thing failed, and at last the man consented to be operated on, on the third day. Mr. Lawrence operated. The sac contained small intestine and a large mass of omentum, in good condition. The man got quite well.

An elderly man was admitted, under Mr. Stanley, with a strangulated scrotal hernia, and refused to be operated on. The operation was not very strongly pressed, as the rupture was large, and not very painful, and his symptoms not very urgent. The tobacco clyster was employed, and ice applied to the rupture. The rupture gradually went up. The tobacco enema was a drachm of tobacco to one pint of boiling water, one half being given at a time.

The application of ice, with the administration of purgative medicine, has succeeded with large scrotal and femoral ruptures, when the symptoms were not very urgent, and the rupture bore handling without much pain. The ice has also been applied with success, when a bit of something hard, or a fulness of doubtful nature, has remained after the decided but partial reduction of a rupture. The success of ice is, however, not very great; and in recent cases of small hernia with pain, almost wanting. After the failure of other means, when the patient objects to the operation, or the symptoms are not very urgent, ice has been often tried, but the operation has generally been at last required.

The administration of purgatives in the following case was

attended with the greatest benefit:—A middle-aged man was admitted, under Mr. Lawrence, with a good-sized scrotal rupture, recently strangulated. The warm bath was tried, without any benefit. A dose of senna mixture was then given, and the rupture went up of itself.

Purgative enemata do not appear to effect any thing more than purgative medicines in strangulated hernia; and, if the quantity of fæcal matter returned with them be considered as a test in any degree of the previous state of the canal, they are attended with great inconvenience. When the taxis has been tried, even if nothing has gone up, the rupture often seems to be a little smaller, or rather less tight at the neck, and the patient generally inclines to the favourable view; these doubts would not be considered as anything, generally, but if at the same time the enema is loaded with fæcal matter, there is a great inducement to delay. Such is the occasional inconvenience of enemata, where nothing has been returned; and when the bowel is pervious, the fæcal evacuations occurring from purgative medicine are a much less valuable test of the condition of the parts, where enemata have been given at the same time, than where they have been omitted.

Of all the means which have been tried, none have been at all comparable for success to the taxis employed in the warm bath, with or without venesection. Independent of a certain degree of ease which the patient feels in the warm bath, it allows of the rupture being handled with less pain, and of being examined more completely. To the production of a more or less complete degree of fainting, the success of the warm bath appears, however, to be chiefly owing. The degree of faintness produced by the warm bath is generally incomplete, and bleeding from the arm is often on this account employed. The value of bleeding to fainting from the arm, in reference to the chance of reduction, being thus so great, it is of some importance to consider an objection which has been made to it, namely, that peritonitis after the operation is much more common, where the patients have been already bled from the arm before the operation, than where no blood has been taken. Experience unfortunately shews, that peritonitis is an occasional attendant on the mere operation for hernia, whether bleeding has

been performed or not. Still, if bleeding does cause peritonitis, this affection should certainly be at least as frequent after bleeding as where no bleeding has been performed. Now the fact is just the reverse, and in so marked a manner, that it even becomes a question, whether in recent strangulated hernia which comes to an operation, the free bleeding from the arm employed with the taxis does not lessen the chance of the occurrence of peritonitis after the operation.

Of thirty-one cases of strangulated hernia operated on, twelve were bled from the arm before the operation. Of these, three had peritonitis and four died, but in two, peritonitis had nothing to do with the death; one dying suddenly on the twenty-fifth day without any particular cause, and the other having an internal strangulation of the bowel. This gives three cases in twelve, or one-fourth, as the proportion of peritonitis, where bleeding had been employed. Of the nineteen cases where no bleeding was performed before the operation, peritonitis occurred in ten instances, not including three cases of internal strangulation. This gives ten cases in nineteen, or rather more than one-half, as the proportion of peritonitis where no bleeding had been performed. This is quite proportion enough to get rid of any anxiety as to the danger of venesection—a measure which has been found of such repeated benefit in the reduction of hernia.

It is remarkable how slight a change is often produced by a very large venesection in the warm bath; even the removal of sixty ounces of blood in a good stream has sometimes produced but an incomplete degree of fainting; and in eight patients who were bled, the quantity of blood taken is only in one case marked so low as twenty ounces, whilst in the remaining seven it varies between thirty and forty ounces.

The chief points of interest in the operation itself are here noted in the order of their occurrence.

In one case a large abscess existed over the external ring; small cysts have occurred over the femoral hernia; and in one case an artery divided in the integuments over an inguinal hernia, bled so freely after the wound was closed, as to require the reopening of the wound. Varicose veins have been met with over the swelling,

and in one case most serious bleeding, followed by peritonitis and death, occurred from the division of a vessel behind Gimbernat's ligament. In looking over the notes of different operations for hernia, it is remarkable how much more difficulty has attended the operations on femoral than those on inguinal ruptures.

From the first incision in the skin to the absolute return of the bowel, some difficulty may be met with in a femoral hernia, from the different layers of the sac, the presence of a cyst, the small size of the sac in a fat subject, the tightness of the stricture, or the fear of a vessel behind Gimbernat's ligament. These are difficulties even by daylight, but by the light of a candle in the middle of the night they have often caused considerable delay, and required great caution.

The first serious difficulty, which has often attended the operations for femoral hernia, has consisted in distinguishing the nature of a round polished surface, which has come into view after something like sac has been divided. Sometimes this surface is marked with little bits of fat, like those on the bowel; sometimes united closely, as if by old adhesions to the sac, like layers already divided, and in some cases the round polished surface exposed has, when followed up to the ring, been found to gather itself into a neck just like the bowel. In these cases the substance exposed has shewn either a very few vessels here and there, or appeared as one uniform dark brown mass, neither circular or longitudinal vessels being anywhere visible. In these cases, the doubtful substance has turned out to be sac, and a continuance of the dissection has shewn something more distinct, or allowed the fluid of the sac to escape at some one point. But again, the escape of fluid has not been always so regular, or so well marked, as to form a certain sign of the depth already arrived at in the operation, and even between the layers of the sac itself, from a cyst or from some indistinct point, sufficient fluid has at times escaped, to stand for the fluid of the sac, if this was opened, or only to add to the difficulty, if the sac is still unopened. In two cases of femoral hernia in women, containing bowel without omentum, no fluid was found in the sac. The largest collections have been in inguinal ruptures, and the largest of all, perhaps, in the inguinal hernia of a young woman.

Cysts in front of the sac, and the deficiency of fluid in the sac, have occurred only in cases of femoral hernia, the flow of any quantity of fluid always indicating, in the cases of inguinal hernia which have occurred recently, that the sac has been opened. The presence of fluid in the sac of the inguinal hernia has not, however, always been a protection to the bowel or omentum in opening the sac, for not unfrequently the omentum has presented itself immediately on the sac being opened, the mass of the fluid being behind.

The character of the fluid has appeared in general to be connected with the condition of the bowel or omentum, and very little with the state of the sac itself. Thus a dark sac, or one quite pale and white, may contain any kind of fluid. Thus, in one case especially, the sac outside was found of a purple colour, and when opened to be of a very dark colour, even on its lining membrane, yet the fluid contained in the sac was tolerably clear.

The characters of the fluid found in the sac have often formed an important subject of consideration, in reference to what has already happened, as well as to the real condition of the patient.

Clear straw-coloured fluid, in any quantity, has never by itself been a matter of much interest in any way; the presence of blood, more or less diluted, the existence of a brown shade in the fluid, or the free flow of fluid from the ring after the return of the bowel, have always however indicated something of importance. The bloody fluid in the sac appears to depend not unfrequently on the close stricture, the coats of the bowel itself feeling thick and leathery. A middle-aged man was admitted with an inguinal rupture of the size of a goose-egg, tense, very small, and hard at the ring. On operation, only thirteen hours from strangulation, the protruded bowel was found of a deep purple colour, and much thickened with blood effused into its coats. The sac was full of bloody fluid.

In this case bowel only was found in the sac: in the following case the same appearances were found, but the omentum appeared to have been the source of the blood.

A middle-aged woman was admitted with a femoral hernia, which was operated on by Mr. Stanley forty-two hours from stran-

gulation. The sac was very thick, and found to contain a large quantity of bloody fluid, with about an inch and a half of large intestine in good condition. Behind the bowel was a large mass of omentum, very much thickened in its middle, and terminating at the femoral ring in a narrow cord of the thickness of the little finger. The whole of the protruded portion was thickened and congested irregularly, whilst the neck of the omentum was of quite a dark colour, and apparently consisted of vessels surrounded by ecchymosed omentum.

These cases, in which the effusion of blood appears to depend on the closeness of the stricture, and where there are no other unfavourable signs, have done well, and their progress throughout has been much more satisfactory than that of others, in which the effusion of blood has depended on other causes.

Bloody fluid has at times been found in another class of cases, depending apparently on a far different cause, and deserving much more consideration. Patients in whom many attempts at reduction have been made before admission, or in whom, from their refusal to submit to an operation, or those in whom from a probability of the hernia being reduced some delay has taken place, and more frequent, although careful, attempts have been made to return the parts;—in these cases the presence of bloody fluid has appeared to depend on the rupture of vessels in the protruded parts, and in these, too, peritonitis has followed the operation much more commonly than when the tightness of the stricture appeared to have been the cause of the effusion of blood.

Where any perforation of the bowel has occurred, the fluid of the sac is generally more or less opaque and brown; still a bowel may be just on the point of giving way, and the fluid of the sac may present nothing unusual, beyond a very slight opacity.

A man was admitted into St. Bartholomew's Hospital under Mr. Lawrence, with an inguinal hernia, of moderate size, very tense and painful, and very narrow at its neck. He was operated on in twenty hours from the strangulation of the rupture. The sac contained a small quantity of opaque watery fluid. The stricture was at the neck of the sac, and so tight that the director could only be introduced with difficulty. On turning down the

parts to examine them, the intestine gave way at a dark spot in the line of stricture. This hole was carefully tied with a ligature, and the bowel returned. No bad symptoms in reference to the bowels or peritoneum occurred, and the man was discharged well in a month, with the parts all healed.

Fæcal odour of the fluid in the sac is described as having been met with in cases where no perforation existed in the bowel, the closeness of the stricture and complete arrest of the circulation allowing the odour to permeate the coats of the bowel. It is well deserving of notice, that distinct perforation of the bowel may take place, and very little odour be perceptible in the fluid of the sac. In two cases of perforation of the bowel at the line of stricture, the fluid in one case was of a dark reddish colour, and in the other of a somewhat brownish tinge, but destitute of any well marked fæcal odour. The presence or absence of fæcal odour in the fluid has not been by any means a certain sign of the bad or good condition of the bowel, its real state being only known by an accurate examination of the bowel itself.

On the return of the bowel into the abdomen a thin stream of fluid is not unfrequently seen flowing from the ring, which may indicate one or two important things. If there is the least shade of brown about it, or the least fæcal odour, it may be a sign that the bowel has given way at the line of stricture, and that chiefly on the side nearest the abdomen; the bowel, perhaps, not giving way till it was moved from the stricture, and then being so thin as to give way from that slight movement. The fluid may be clear, but most copious in quantity. In such a case peritonitis is at times severe, but of an active kind, and such as often yields to treatment.

The treatment of the bowel and omentum contained in the sac has rarely been a matter of doubt. A roughness on the bowel in one case, and a layer of lymph in another, both of which had severe peritonitis, were marked at the time of operation; in nearly all the bowel was more or less congested, and in one a leathery patch was noted on the convex part of the protruded bowel. The chief difference of treatment in the various cases has consisted in the removal or return of the omentum.

The omentum has been found adherent, even when no truss

has been ever applied. In no case, even amongst those operated on twice, has there been any thing like a closure of the ring by the omentum, but at times a hernial sac, containing adherent omentum, has been met with, placed so as to allow a bit of bowel to slip into the ring at any moment, this being the part where it was least adherent.

In the cases mentioned below, the patients died solely from long bands of omentum pressing the bowels against the back of the abdomen, the omentum being adherent to the sac. There is, however, another way in which a cord of omentum may be formed without any adhesion.

The omentum, in some cases, has simply adhered to the walls of the sac, and in these cases, excepting this adhesion, no great difference has been found between the portion of omentum in the abdominal cavity and that in the sac. In other cases, however, the portion of omentum in the sac itself has contracted no adhesions, but gone on increasing in bulk, the portion in the ring undergoing no change. In this way the great omentum is drawn as tightly over the bowel as if the omentum was firmly adherent, for the enlarged lump of omentum cannot pass the ring in any way. This large pad of omentum may be free and simply enlarged, but at other times it is thickened and adherent, and when so thickened may cause difficulty.

In a man with an inguinal hernia, operated on by Mr. Stanley, large intestine and omentum were found. The protruded portion of omentum was about six inches long. In four or five places the omentum was hardened in patches, about the size of a testicle, which by their round form increased the resemblance to that organ. The cellular part of the omentum round these masses presented a series of irregular cavities resembling bursæ, but smaller in size, less regular in form, and traversed by cellular bands. The masses of hard fat, by their round form and free motion in the cellular interspaces, so accurately resembled testicles moving in their serous sacs, that one of these masses was supposed at first to be a testicle. In another case of hernia, also under Mr. Stanley, the mass of omentum appeared to consist of an enlarged appendix epiploica, which had enlarged in the sac, but not at the ring.

The two following cases are selected as of interest on account of the existence of the general symptoms of hernia, combined with a hernial sac in one case, and a reducible rupture on the other. In the first there was perforation of the duodenum, and in the second a displaced cæcum; but in both the symptoms were sufficiently well marked to show that they were unconnected with the rupture.

A man, aged twenty, was admitted, under Mr. Stanley, one morning in a dying state. His bowels had been constipated for three days; his belly was very painful; and though there was no vomiting, he had some hiccup. On the left side of the scrotum no testicle could be found, and there was some indistinct fulness at the ring. For ten years he had laboured under a rupture easily reducible, and also suffered from dyspepsia and constipation. The day before he was seized with pain in the belly, such as to require him to leave his work. A medical man took sixteen ounces of blood from his arm, and gave him some calomel and opium followed by a black dose without any effect in opening his bowels. He died in twenty minutes after admission.

Dissection shewed a round ulcer perforating the duodenum, allowing the contents of the alimentary canal to escape into the cavity of the peritoneum, which contained several pints of a turbid sero-purulent fluid. The left testicle was placed near the external ring in the canal, and was contained in a sac which communicated freely with the peritoneal cavity. No protrusion or strangulation existed.

In the following case the marked signs of strangulation existed in a patient labouring under a considerable hernia; this hernia was, however, so flaccid and reducible as to render it most probable that some internal obstruction existed.

An old infirm man was admitted one Saturday evening, under Mr. Lawrence, labouring under a scrotal hernia of old standing. The hernia was soft, easy, and quite reducible, with a large ring, which could be felt quite free. The rupture had generally been more or less down.

He had been sick, and his bowels were confined. For some days he had complained of uneasiness in the abdomen, and was unwell; the pain, however, increased this morning whilst lift-

ing a weight. The pain was not relieved by the reduction of the swelling; he still complained of uneasiness in the right iliac fossa.

A dose of opening medicine was given, which at first produced vomiting. The medicine was repeated afterwards at intervals, and he retained portions of it without vomiting; but after some hours he vomited again, and rejected a fæcal fluid like that usually found in the small intestines.

The abdomen became more tender, especially in the right iliac fossa, in which part it more particularly swelled. He slowly died on the following evening of Sunday.

On dissection the bowels were found much distended; there was also some degree of peritonitis, especially near the right iliac fossa. The cæcum was large and loose, with a meso-cæcum. This cæcum had been turned wrong way upwards, so that the base pointed upwards and to the right, the continuation into the colon forming an angle in the right iliac fossa, so that the anterior wall of the cæcum was applied on the anterior wall of the ascending colon; and the portion of ilium to enter the cæcum thus passed between the anterior wall of the ascending colon and the anterior wall of the cæcum, which, by the change of position, had become posterior: this portion of small intestine thus acting like a cord, and compressing the ascending colon tightly, had caused the strangulation of the bowels at a point on the distal side of the cæcum, which latter bowel, by its distension, formed the swelling in the right iliac fossa.

Young persons labouring under hernia, accompanied with well-marked symptoms, are in general submitted to an early operation; yet even in these cases the propriety of an immediate operation may be a matter of very nice judgment, or circumstances may occur afterwards, shewing that a little delay would have perhaps been unattended with danger.

A stout healthy young woman was admitted, under Mr. Vincent, in the autumn of 1844, labouring under an inguinal rupture of some years' standing, which had been strangulated twelve hours: she was in pain, was sick, and her bowels were confined. She had taken some opening medicine.

She was operated on soon after admission. The sac was thin,

MANCHESTER MEDICAL SOCIETY

and contained half a pint of serous fluid. Whilst the bowel was being felt for high up out of sight, and before any thing had been divided, the bowels were profusely open, and in such a way as to shew that the purgative medicine had passed through, no injection having been given. It seemed that the evacuation of this mass of fluid had relieved the stricture. She got quite well.

In this case the escape of the fluid seemed to allow the return of a bit of bowel just caught in the ring, without any division of the stricture.

The following case shews a similar collection of a large quantity of fluid in the sac, with a recent hernia, in a young person, but where the bowel and fluid at last returned into the abdomen without operation :—

A young man was admitted in the winter of 1840, under Mr. Lawrence, complaining of being sick, and of a severe pain in the lower part of his belly, chiefly on the right side. This man stated that he had not had any swelling in the scrotum till an hour before, when it first appeared, whilst he was leaning forward and performing some work; at the same time the pain and sickness commenced. The right inguinal canal was fuller than natural; most prominent, however, just on the outer side of the external inguinal ring. The scrotum was, on the right side, distended in a round form, of the size of an orange, very tense, and exceedingly painful on pressure. The swelling of the scrotum and canal were but slightly connected together; there was, however, sufficient fulness to depend either on a thick cord, or on a cord with something more. The scrotum was quite transparent when a candle was held to it.

The man was bled and placed in a bath, whilst the taxis was applied. No decided change was produced, except that some little reduction of the swelling took place, and the pain was slightly lessened. He was then put to bed, and some senna mixture given.

The man remained faint in bed for about half an hour, when he felt something move in the situation of the internal ring, with a gurgling and immediate relief to the pain, the swelling also disappearing. When seen in a quarter of an hour, the two inguinal canals were equally flat, the two sides of the scrotum similar, the

two testicles equal in size, and the right inguinal ring larger than the opposite.

Of the four cases just related, the two first illustrate the occurrence of symptoms more or less closely resembling those of strangulated hernia, occurring in persons labouring under reducible hernia,—this hernia, however, having no part in the affection; whilst the two last shew the occasional difficulty in judging of the necessity of an immediate operation, the question being so finely balanced, that an immediate operation might have been perhaps performed or omitted with equal propriety in either case. The four following cases illustrate a question of much greater difficulty, being instances where an operation is generally urgently demanded, but where little hope can be entertained of a good result. The principal features of these cases consist in the existence of the symptoms of strangulation in a patient labouring under a hernial protrusion, to which the pain is referred, but which, on operation, is found to contain nothing, or an imperfectly strangulated bowel, the chief strangulation arising from a band of omentum passing down to the abdominal parietes, or to the neck of the sac itself, and thus compressing the bowel in the abdominal cavity, or in the neck of the sac.*

A man, aged about 48 years, was admitted, under Mr. Vincent, into St. Bartholomew's Hospital, April 30, 1842, labouring under a strangulated scrotal hernia of the right side, which had descended a few hours before. The patient had some sickness, with constipation.

He was bled and put in the warm bath; the hernia was then partially reduced, and rendered quite flaccid, and in the evening it was nearly all returned.

On the second day he slept at times, had little pain in the abdomen, but was still sick and constipated.

On the third day he was sick, the abdomen was distended, and no evacuations had occurred. The hernial protrusion existed to a certain degree, but was flaccid.

On the morning of the fourth day he died.

* A paper on this class of cases, by Dr. Schuh, is contained in "Medecin. Jahrbuch. Wien." Feb. 1844.

This man had been operated on in the hospital sixteen months before, for the same rupture, by Mr. Skey, when the bowel had been returned, and the omentum left in the sac, to the cicatrix of which it had then united by granulation.

On examination, the ring was found to be large and free. A small piece of ileum lay in the ring, continuous, in the direction of the cæcum, with about a foot more of small intestine,—all this portion in the ring and abdomen being dark and much congested, but shining. These changes terminated abruptly at what appeared to have been the strictured part. From the arch of the stomach to the scrotal cicatrix the great omentum descended like a tight cord, tightly compressing the bowels against the back of the abdomen, and against the hernial sac. The bowels were very much distended above the strictured portion, whilst below they were quite empty and flaccid.

In the case just related the strangulation was caused by a tight band of omentum passing down into the sac, which compressed the bowels in the neck of the sac and cavity of the abdomen. The end of the omentum was within reach, and if the peculiar nature of the case had been pointed out by plain symptoms, and a division of it made, a fair hope might have been entertained of recovery.

In the following case the symptoms of strangulation depended, as in common strangulated hernia, on the contraction of the parts in the ring; but the fatal result was caused by extensive adhesion in the abdomen of the omentum along the upper edge of the pelvis, which kept the bowels in a mass at the back of the abdomen, and which, by its pressure, prevented a free passage through the viscera. This adhesion was quite beyond reach.

A woman, aged 51, was admitted, under Mr. Stanley, into St. Bartholomew's Hospital, on Dec. 22d, 1843, labouring under a large femoral hernia of the right side, which had descended on the previous day. The swelling was tender on pressure, and accompanied with pain in the belly, sickness, and constipation. On operation, a large portion of omentum was found adherent to the sac, behind which was a portion of inflamed but shining intestine. The ring was freely divided, but the bowel was returned with some difficulty.

This patient continued in a low condition for some time, but improved considerably about the sixth day: on the evening of this day she was, however, attacked suddenly with pain in the belly with vomiting, and died on the night of the seventh day.

No satisfactory evacuations occurred in this case, the only fæcal evacuations occurring after the use of enemata.

On examination, severe peritonitis, with effusion of blood, was found to have occurred. A curtain of great omentum was formed across the lower part of the abdominal cavity, by the union of the lower edge of this structure to the iliac fossa. This curtain lay behind the right femoral ring, whilst its edge extended from the umbilicus to the pelvis on the mesial side of the ring. The intestine, in being returned into the abdomen, had to pass round the edge of this omentum. The mass of small intestines which lay behind this portion of omentum was thickened and contracted, and it appeared probable that no clear passage had existed through the bowels.

In this case the appearance of the bowel in the sac resembled so closely that commonly found in strangulated hernia, that every object appeared to be answered by the operation. The omentum did not appear to be unusually tight, neither was its condition such as to require any interference. The distension, however, of the intestines on one side of the cord of omentum, and their empty condition on the other, together with the marked line on the bowels from the pressure of the omentum, left no doubt that the extended sheet of omentum was the main cause of the strangulation, and of the fatal result.

In the case just related the operation was performed with every prospect of success; the band of omentum, however, still remaining firm, a fatal result followed. In the following case a fatal result also followed the operation, from a similar band of omentum, the existence of which was known, but which was not supposed to be exercising any prejudicial influence. In addition to the want of any direct proof of pressure of the omentum on the viscera, the mass of omentum obscured considerably the accurate examination of the contents of the sac.

A woman, aged 67, was admitted into St. Bartholomew's Hospital, under Mr. Skey, on March 18th, 1843, labouring under a femoral

hernia of the right side, which had descended twenty hours previously, accompanied with constipation and vomiting. On operation the sac contained but little fluid. A portion of congested, but otherwise healthy small intestine, was found in the sac, together with a cord-like portion of omentum, which passed to the bottom of the sac. The bowel was returned, after a division of the parts at the neck of the sac had been made upwards and inwards: the omentum was left.

No relief in any marked degree followed the operation. The patient continued to vomit, and sank, without having passed any motions, on the morning of March 20th.

On examination, peritonitis was found to have occurred. The position of the viscera was, however, remarkable. A cord-like portion of omentum passed from the great omentum on the right side to the fundus of the sac; the great intestine, and a portion of the small intestine to the right of this, were pale, empty and contracted, whilst that to the left was full, distended and vascular, the boundary being decidedly and well marked at the line of pressure of the omentum.

This woman had been operated on, on the left side, eighteen months previously, by Mr. Vincent. The sac on this side contained a portion of reducible intestine, and a portion of omentum very similar to that on the right side.

In all the three preceding cases, the omentum, by its pressure either as a tight cord or as a broad fold, compressed the bowel in the canal or abdomen. In the following case the broad adhesions of the great omentum seemed to have acted indirectly in hastening the death of the patient, by preventing the intestine recovering its natural position after it had become twisted on itself. Although exerting only slight pressure when the parts were in their natural position, the omentum would compress them forcibly when distended.

A woman, aged 48, was admitted into St. Bartholomew's Hospital, under Mr. Stanley, labouring under a femoral hernia of the left side, irreducible, but free from pain. On the right side, in the femoral opening, a hernial sac was felt, which was painful on pressure of the part and just above the crural arch, whilst a very slight degree of fulness was perceptible by deep pressure over the vessels.

The woman was in a very low and feeble condition. She had been ruptured some years on the right side, but she had been always able to return the swelling. Seven days since, after some pain of the bowels, constipation commenced, which had lasted to the present time. She had also been sick.

Although great doubt existed as to the cause of the symptoms, there was just enough doubt as to the nature of the swelling in the right groin to render an operation advisable.

She refused to be operated on then, but consented on the following day. When the sac on the right side had been opened, no intestine was found in it, but only a small portion of the lower end of the great omentum adherent to the sac. This was divided and returned. She gradually died on the following day. On examination, the bowels were found to be much distended with air. The lower part of the great omentum was fixed by firm old adhesions round the right femoral ring, but did not close it. On the left side the omentum was also adherent by old adhesions round the ring into the hernial sac. By this fixing of the omentum the bowels were to a certain degree compressed towards the spine. On dividing the omentum the small intestines were brought into view; the duodenum and the upper part of the jejunum were distended with air, this distension terminating abruptly on the left side of the spine, just where the mesentery begins, at which part the intestine was twisted behind the mesentery. On separating the bowel, a recent ulcer was found perforating the intestine, close to the part at which the intestine was twisted, and where the contraction and distension met.

The following dissection shews a position of the omentum which had not caused any inconvenience, but which might have given rise to a case resembling those just described :—

A man was dissected, labouring under an oblique inguinal hernia of the left side, descending into the scrotum. On examining the hernia, no bowel was contained in the sac, but a very large piece of the great omentum, which could not be returned. No great thickening of the omentum, nor any adhesion in any part of the sac, or of its neck, was present. On opening the abdomen the ring was quite free, and allowed the entrance of the finger readily; the omentum was, however, closely

adherent to the peritoneum, in the neighbourhood of the ring, by old firm adhesions, so that the great omentum extended from the great arch of the stomach to the ring, adherent at both points, but allowing the vessels to pass readily under it without any constriction.

The treatment of the omentum has consisted in leaving it in the sac, in returning it into the abdomen, and in cutting it off.

The omentum is rarely left in the sac, and apparently with justice, as there are generally reasons for cutting it off, or for returning it into the abdomen. The benefit of leaving it in the sac is none, for it seems to have no tendency in general to close the sac, and the evils resulting from it remaining there are great. It may inflame and suppurate, and retard the cure after the operation, or it may prevent a truss being applied, and it may in itself be the cause of strangulation of the bowel. Many cases do well when it is left, but the simple fact of a mass of omentum being in the sac does no good, and may destroy life. In reference to returning the omentum there are often great objections, sometimes great risk, and generally little benefit.

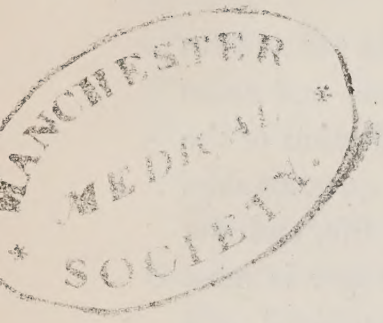
The omentum, in a doubtful condition, is never fit to be placed in the abdomen; and the question is, how far omentum, uninflamed, is fit to be returned.

To ascertain the condition of the omentum it has to be handled and exposed pretty freely; in returning it each part comes in contact with the finger, and when returned it does not immediately spread out, but lies together not far from the ring. These are not perhaps very serious matters individually, but they all three are conjoined in each case, and they are objections when the returned omentum, though healthy, is very large in extent.

The omentum, however, is often much changed. Instead of being a delicate net-work of tissue filled with fat, and so soft that it almost takes a cast of the surfaces of the viscera and of the smooth peritoneal lining of the abdomen, it is often as hard as a pancreas, or twisted like a bell rope, or adherent in close and intricate folds. It is then, in fact, no membrane, but a tough hard solid mass; and if returned must take up room. It is hard to attribute bad consequences at once to the return of the omentum, but its return has never done any additional good, and the treat-

ment of it next to be described has seemed to be the most successful.

Of the two alternatives—leaving the omentum in the sac and returning it—the former is attended with inconvenience and some risk, whilst the latter, in cases of any inflammatory affection of the omentum, is hazardous, and in enlargement of it is questionable. These are risks not of simple inconvenience, but of life, and any means of avoiding them without incurring equal danger is most valuable. The loss of any portion of omentum contained in a hernial sac by removal, does not seem to have been found an inconvenience to the patient in any recorded case, and in the cases which have occurred at St. Bartholomew's Hospital, the divided arteries carefully tied and sought out with warm water, have not given rise to any bleeding. All the evils of returning the omentum and leaving it in the sac are avoided by its removal, except one; that is, its edges may adhere to the edge of the ring in the abdomen. Even if it does this, the bowel escapes being caught in the ring and sac by the omentum; and it even adheres here sometimes when it is free in the sac and no division has been made. These are matters of reasoning; but let us turn to the broad fact, and see if the results of cutting off the omentum are good; in short, if the patients so treated have done well. It is most satisfactory to look over the cases where the omentum has been removed. When the vessels have been carefully tied, every artery being encouraged to bleed, no bad consequences have ensued, whilst the risk attending the return of a healthy but necessarily well-handled portion of omentum has been saved, and the subsequent progress of the case has not been delayed by a tedious suppuration, or endangered by a second strangulation, caused, not by the neck or any part of the sac, but by the omentum itself.



CHAPTER II.

ON FRACTURES OF THE RIBS, LOWER JAW, AND PELVIS.

Fracture of the ribs: Crepitus of ribs on auscultation. Admission of air into the lung on the injured side. Affections of the lungs and pleura. Venesection on the occurrence of fracture. Injuries to the chest in children. Case of simple compression of the chest. Case of ruptured bronchus in a child. Escape of air into the pleura, unattended by any inflammatory affection of the parts. Injuries to the lungs. Abscess round broken rib. Cases of lacerated lung terminating fatally. Case of sudden effusion of blood into the pleura, with recovery. Dissection of case of effusion into the chest, eighteen years afterwards.

Fracture of the lower jaw: Affection of mouth resembling salivation after fracture. Fracture in the mesial line. Absence of laceration of the gum. Fracture of the lower jaw, followed by amaurosis.

Fracture of the pelvis. Strength of the pelvis in one direction. Cause of laceration of the perineum.

Broken ribs are perhaps the most common of all fractures, and are generally easily detected. In addition, however, to the common means of detection, the crepitus of a broken rib may often be also heard, if the ear is applied to the chest soon after the accident; but the crepitus of a broken rib generally ceases to be audible about the third, fifth, or sixth day. It is a regular harsh grate, and distinct from all crepitation, chiefly, and at times only, audible during inspiration, as well as sometimes audible only occasionally; at other times it is audible during several successive inspirations, and then ceases for a time. It is generally a mere matter of curiosity, for the hand detects the crepitus more easily, and examines a larger space at once.

Pneumonia and pleurisy occur very seldom indeed after ordinary fracture of the ribs, but slight bronchitis of the smaller tubes is not at all uncommon. For many days after a rib has been broken, the injured side of the chest moves less freely, and the lung admits

less air to move about in it, whilst a little intermediate, not small, crepitation may be heard low down on the injured side. This crepitation does not generally proceed to any degree of importance, but yields to the mildest measures, and often spontaneously.

The employment of opium to relieve the distress of the patient, after fracture of the ribs, is attended with as great hazard as when this means is employed in chronic bronchitis. Although one rib is rarely broken by itself, and the number of fractured ribs is nearly always greater than can be felt, yet the number of ribs which may be broken with impunity is very large indeed, patients recovering at times when the side is regularly crushed in.

Bronchitis is the most common accident from this injury; and as the patients have often already been subject to this affection of the chest in a chronic form, a broken rib often brings on a serious attack. A very severe case of this affection was in the hospital in 1840-1, where the mucus at last collected in such quantity that the man's life was in danger from suffocation. The ribs were very severely broken, but the man's death appeared to be at hand, and vomiting seemed to afford some hope of relieving him. A strong emetic was given; the man vomited profusely, without further injury to the ribs, and with great relief. He ultimately recovered.

It is very remarkable how commonly people are bled, simply because their ribs are, or are supposed to be, broken. The reason is not very clear, but so commonly is bleeding performed under these circumstances, that poor patients occasionally consider its non-performance as an omission. This venesection can only have one, or perhaps two, objects in view; the relief to the present difficulty in breathing, or a diminution of the chance of inflammation of the respiratory organs.

The omission of venesection on the occurence of fracture of the ribs is not followed by any bad effects which would be prevented by its performance; neither is it more likely to be required in a subsequent period of the case for having been omitted at first. The inflammation of the pleuræ, or lungs, which arises occasionally after this accident, does not depend in general on the plethoric condition of the individual, but on the injury inflicted on the structures themselves, and arises at a short period after its infliction. These affections of the respiratory organs are attended with the

auscultatory signs and the general characters of thoracic disease, and require the same treatment, however much the ultimate chance of recovery may be compromised by the local injury.

The relief by bleeding to the suffocative sensation caused by fracture of the ribs, has rarely appeared to be very decided, and certainly not so marked as to induce one to perform bleeding to relieve it. In short, venesection performed on the occurrence of fracture of the ribs does not appear to be attended with either immediate or ultimate benefit in a sufficiently marked degree to justify its general employment, even if this slight operation was free from risk; and as fatal phlebitis has sometimes occurred from this very practice, its performance, except for urgent reasons, may reasonably be omitted.

A man was admitted, under Mr. Lawrence, into St. Bartholomew's Hospital, then labouring under phlebitis of the veins of the right arm, and broken ribs. Auscultation detected the crepitus of the ribs, but shewed the breathing to be healthy. This man gave the following history. Three days previously he fell out of a cab, and broke his ribs, for which he was bled from the right vena mediana cephalica. On the following day his arm was stiff. On the third day he came first to the hospital. He died in a week.

The vena cephalica and basilica of the right arm were thickened with lymph and pus, as well as the vena saphena of one leg. The right shoulder and left wrist joints were full of pus, with some loss of cartilage on the head of the right humerus. The lungs were quite healthy; the right pleura was adherent round two broken ribs with a little opaque serum.

In dissecting the bodies of old women, and especially those of very old persons, who have become bent up, so that the chin and pelvis are approximated, the ribs are often found quite thin and brittle, so that they break readily even in cleaning, and will not bear maceration. These ribs would, probably, break readily during life, but the persons so affected are generally bed-ridden, or so infirm as to move about very little, and consequently are not much exposed to accident. One of these wasted old women was admitted one day with a dislocated humerus, which was being reduced with the heel in the axilla, by the house-surgeon, when a

crack, like a rib breaking, sounded from the direction of the chest: the humerus was reduced, and nothing happened wrong in the chest; but there seemed to be little doubt that a rib had broken from the simple pressure of the foot.

Although the ribs may be broken to a very great extent with impunity, although the pleura is often quite entire over a fractured rib, and although the lung may escape wounding even when it is united to the broken rib by old adhesions, yet in every one of these cases death may ensue from some peculiarity of the fracture, or from bad consequences resulting, even though the fracture has not been accompanied with the ordinary degree of injury. In ausculting cases of broken ribs which are doing well, the diminution in the quantity of moving air on the injured side is very marked, and thus it may readily be conceived how much additional injury to breathing a fracture of ribs on both sides of the chest may cause. It is not at all uncommon also for the same ribs to break both behind and in front, and then the broken ribs sometimes fall on to the lung in mass, and compress it to a certain degree.

The simple fracture of the ribs, unaccompanied by laceration of the pleura, may be followed by fatal inflammation of the pleura and lung.

An unhealthy brewer's man was pressed between a wheel and a wall, and broke his ribs. He died with the signs of inflammation of the lungs. On examination four ribs were found broken before and behind on the right side, whilst a large quantity of blood was found effused generally under the pleura costalis, without injury to the pleura itself. The pleura was, however, reddened, and two ounces of serum were effused into its cavity. The right lung was pushed forwards, so as to touch the mesial line, apparently from the compression of the ribs which had fallen in on it. The right lung, in its lower and part of the middle lobe, was inflamed and impervious to air: the left lung was healthy.

Children are not very liable to fracture of the ribs; partly because they are less exposed than labouring persons to severe blows and accidents, but more especially from the softness and elasticity of their ribs, which yield readily and resume again their natural

form. A little child was brought one day for relief. He appeared half choked; his skin was dusky, and his conjunctiva quite loaded with blood. He had had a tremendous squeeze, which seemed to have done his frame no harm, except that by straining he had ruptured many small blood-vessels, or dilated them for the time.

The following case shews the degree of pressure which the ribs of children will bear without breaking. In this case the chest was compressed to such a degree as to rupture the bronchus, and yet without breaking the ribs. A little boy, about five years of age, was admitted into St. Bartholomew's Hospital, under Mr. Stanley, in the winter of 1842, having been pressed between a wheel and the wall of a street. Within five minutes of admission, the face, arms, and chest, were emphysematous, the right side of the face being the first bare part affected. Within one hour the child was quite emphysematous from the forehead to the ankles, with hoarse breathing and cough. He lay chiefly on his back.

The skin was so tense in eight hours that a puncture was made in it, from which a stream of air flowed freely, with relief to the emphysema. On the fifth day the child began to lie constantly on the right side; and on the eighth he sat up a little time in bed, but lay nearly always on his right side: the emphysema was now almost removed. On the thirteenth day his breath became so fœtid, that he was removed to a separate ward, and he gradually died on the seventeenth day, having continued to lie from the fifth day to his death on his right side; the extreme fœtor of the breath, and difficulty of breathing, with cough, having existed from about the thirteenth day.

On dissection all the ribs were entire. The right lung was collapsed, but not wounded, whilst the pleura of that side was covered by false membrane, and contained ten ounces of pus, not fœtid. The right bronchus was torn across in half its diameter, just at its division into smaller branches; the edges of the mucous membrane round the wound being very red and vascular.

The following case is inserted here in reference to the escape of air into the pleura, and its effects. In the last case the air in the pleura appeared to have produced a fatal result; in the following

case air appeared to have remained in the pleura without producing any serious consequences.*

A boy, aged eighteen years, was in St. Bartholomew's Hospital with a fungoid tumour of the pelvis; he went home and died there. The body was examined by Mr. Paget and myself.

After examining the fungoid tumour, the chest was opened. In the upper part of the left lung some hard yellow tubercles were found. The right pleura was full of air; the right lung was completely collapsed, and sunk back quite free to the back of the chest. There was one long fine filamentous adhesion extending from the inside of the pleura about the fifth rib to the lung, almost as fine as a coarse thread. The right pleura was quite dry, free from fœtor, smooth and shining, and did not contain any fluid of any kind. Under the pleuræ of both lungs some soft medullary matter was deposited, in one or two spots marked with blood. In one of these, on the lower and outer part of the right lung, the deposit being not much larger than a pin's head, a minute aperture existed, forming a communication between the right pleura and the air cells of the right lung. This aperture was so small as to be hardly perceptible, but became plain on inflating the lung in water. The right lung itself was considerably, but not very closely, compressed, recovering, however, to a certain degree when blown into. The left lung was quite permeable, and united pretty closely to the thoracic walls by adhesions. The right side of the heart was flattened, so as accurately to correspond to the collapsed lung. The liver was also, to a certain degree, pushed down by the depression of the diaphragm on the right side.

Looking at all these changes—the comparative impermeability of the lung, the flattening of the heart, the depression of the diaphragm, and the length of the single adhesion—it appeared probable that the lung had given way some time before death, but it was certain that the lung was in its present contracted state when the heart became rigid, and took a cast of it.

* The absence of inflammation of the pleura of a dog, after free exposure to the air by an external wound, is described by Mr. Hunter.—Hunter's Works, by Palmer, vol. iii. p. 352.

We asked his friends for any particulars which might explain he difficulty, and learned the following circumstances:—

Four months before his death he was sitting in a chair, and was suddenly seized with most acute pain in one side, which caused such a sense of suffocation as to threaten his life. From this he recovered in an hour, and had afterwards no difficulty of breathing.

The degree of injury inflicted on the lungs by fracture of the ribs varies much. Thus even with fracture of three or four of the ribs, and general adhesions of the pulmonary and costal pleura, the lungs sometimes entirely escape injury, if the ends of the ribs are broken in a simple transverse manner, and not so as to form acute points. It is not at all uncommon to find the pleura covering broken ribs uninjured and quite entire.

Fracture of a rib from great pressure is sometimes accompanied with such injury to the lung and pleura as to excite suppuration round the injured rib, and cause mortification of a neighbouring part of lung, terminating fatally by hæmorrhage from the wound with hæmoptysis. A man was admitted into St. Bartholomew's Hospital, under Mr. Lawrence, in the summer of 1842, with fracture of the lower jaw, and injury to the upper part of the chest, from a wheel passing over it. He went on pretty well till the fourteenth day, when an abscess formed over the first and second ribs, beneath the pectoralis major, attended with an impulse on coughing, and containing about six ounces of well-formed matter without any mixture of air.

The abscess discharged, without materially affecting the man's health, till the twenty-first day, when hæmoptysis, accompanied with profuse arterial hæmorrhage from the abscess, occurred, under which he sank in two days.

On examination, the first rib of the right side was found separated at its junction with the sternum, whilst the periosteum was separated from the first rib nearly as far back as its spinal extremity. An abscess of the capacity of half a pint was found round the sternal extremity of the rib, covered in front by the pectoralis major, and behind by a portion of the front surface of the lung, which was adherent to the ribs round the edges. A part of the lung forming the floor of the abscess was dead, and partially sepa-

rated from the surrounding tissue. A bronchial tube communicated with this dead portion of the lung, as well as with the abscess, from the neighbourhood of which the bleeding had probably occurred.

A man with an extensively ruptured lung and broken ribs may live a short time.

A waggon wheel passed over a man's side; he lived only about one hour and ten minutes, and within one hour from the accident was cold and pulseless.

Four or five ribs were broken on each side before and behind, and there was about a pint of blood in the left pleura: the upper lobe of the left lung was also rent.

A waggon passed over a man's left shoulder; he lived only one hour, but he walked three quarters of a mile after the accident.

The right side was uninjured. On the left side the lung was rent, six ribs were broken, and there were about six ounces of blood in the pleura.

Both men seemed to fail very much from exhaustion, and not from mere suffocation. The man with the least injury died first, but then he walked three quarters of a mile. It was noticed that his heart and pulmonary vessels were empty, and contained no blood, yet only six ounces were found in the pleura.

In connection with effusion of blood into the pleura from injury of the chest, the following case is related, on account of its similarity in many respects to those just related. Although the real nature of the injury was never a matter of ocular demonstration, for the girl, with all her misfortunes, got quite well, yet its nature appeared to be clear.

A girl, thirteen years of age, was admitted June 26, 1843, under Mr. Vincent, about 11 P.M., two hours after breaking her left thigh by a fall from a window, in such extreme faintness that her life appeared to be in immediate danger; she was coughing up a little blood. Some wine was given to revive her, and her thigh was then set. In the evening she was breathing with great difficulty, but was relieved by bleeding to four ounces.

On the 27th the child was quite pale, restless, but drowsy at times, rolling about in bed, and very faint. A few leeches were

applied to the sternum to relieve the difficulty of breathing, which was considerable.

3rd day.—The child is decidedly stronger this day, and not sinking from weakness. She is, however, somewhat feverish and flushed; the tongue is furred, the skin hot, and the pulse decidedly hard. During yesterday and this day (28th), from her changing her position from time to time, a complete auscultation was obtained, which, though obtained collectively on two days, may be taken as the condition for the second and third days.

She can lie on the back or left side, but believes herself not to be able to lie on the right side. The inspiratory motions of the right side of the chest are very great and forcible, the respiratory sounds louder than natural, but purely vesicular, and the resonance on percussion uniformly good. The left side presents, however, a remarkable contrast. The left side, before and behind, is dull on percussion, the apex being the least dull part; air can, however, be heard entering the lung behind, at the upper as well as at the middle part, in very small quantity, and in front in the apex, and that more freely. No bronchial breathing, bronchophony, or crepitation in any marked or decided form, can be heard. There is a very peculiar thrilling feel perceptible over the upper and left subclavicular space, the cause of which is not very clear.

6th day.—She now appears easier, and breathes with less difficulty. The left side of the chest still moves less freely than the right, but not very much less than in the natural degree. The upper third of the lung admits air more freely than before, and quite to the vesicular structure, but sounding distant. Percussion is very dull in front on the left side, but least dull towards the axilla. There is no unnatural accompanying sound. Only the front part can be listened to.

12th day.—The two sides move equally; the left side in front admits more air, but not so much as the right. The lateral part admits air all the way down to the ninth rib; but behind, the lower part admits no air, and in the middle the breathing is loud and rough. The apex behind cannot be listened to. Percussion of the left side is in front rather duller than on the right; in the lateral part much duller, and behind quite dull. Child easier and more comfortable.

14th day.—The child has now no difficulty of breathing. The two sides of the chest admit air quite freely, even at the back, on the left side. The whole breathing on the left side is, however, loud and coarse, whilst the percussion is just a little less resonant on the whole of the left side than on the right. She went home soon afterwards, convalescent.

What was the injury here? The lung was not torn, for there was dulness of the side instead of resonance, and the auscultatory signs of imperfect entrance of air were too sudden to be produced by an inflammatory change dependent on injury to the lung. It could only be one thing — hæmorrhage into the pleura. To this the sudden and extreme fainting, the compression of the lung unaccompanied by moist sounds, and the slow, but gradual removal of the obstruction, point. There may have been a broken rib, or not; and certainly without it, it would be hard to account for the bleeding.

The following case is related on account of the rare opportunities which occur of examining such cases. It presents a summary of the changes which the chest had gradually undergone during eighteen years, after an effusion into the cavity of the pleura from inflammation, and where, from the peculiar appearance of the pleura, the cavity still remaining in it, and the condition of the lung opposite this cavity, in connection with the history, it would seem not improbable that the fluid had been more or less completely evacuated through the bronchial tubes.

In March 1840, a woman, aged thirty, was admitted with dropsy and diseased liver, of which she died almost immediately after admission. On examining the body the chest appeared peculiarly altered. No mark of any puncture could be observed outside the chest. The right side of the chest was $\frac{3}{4}$ of an inch smaller in circumference than the left. The fifth, sixth, and seventh ribs were bent inwards, and appeared to form part of a smaller circle on the right than on the opposite side, but the thickness of the ribs on the two sides of the chest was equal. The anterior mediastinum was filled by a dense tissue of considerable thickness, completely hiding the lungs and heart from view. The right lung was quite adherent to the walls of the chest by the thickened pleura, the thickness of this being on the upper lobe, and upper part of the middle

lobe about one-tenth of an inch, and on the lower part of the middle lobe and the lower lobe, from one-quarter of an inch above, to one inch below, at the base of the lung. This thickened pleura consisted of a dense white tissue, not distinguishable into different layers, and was connected with two cavities, one at the back of the heart, of the capacity of a drachm, filled with a substance like wet mortar, doubtfully in its substance, and a second cavity clearly contained in it, opposite the lower lobe of the right lung, capable of containing half an ounce, and filled with a mixture of a gritty and gelatinous substance. The right lung was small, but healthy in substance, except in a spot of the size of a walnut, opposite the cavity in the pleura, which lay against the lower lobe of the lung; here the pulmonary tissue was firm, pale, and impervious to air. The left lung was partially adherent, the left pleura contained about ten ounces of serum, with which the peritoneal cavity was also filled. The pericardium was almost universally adherent, but the heart, except slight valvular disease, was nearly healthy. No tuberculous disease existed.

This patient was so low when she was admitted, and died so soon, that no note of her case was obtained. The following history was however obtained from her friends, who were found living at Islington.

Eighteen years before her death, having always been an unhealthy child, but well formed, she was attacked with scarlatina, which she went through favourably, but on recovering, had a relapse, in which her chest was affected. This affection began with a stitch, and was followed by cough, and the treatment consisted in applying leeches to the chest and bleeding from the arm. She was so ill, that her friends were sent for, and told to come soon, if they wished to see her alive, and her recovery was thought so remarkable, that a magistrate in the neighbourhood of Brentford, (well known for his kindness to the poor) allowed her free access to his private garden to walk in, and permission to eat fruit. Her side on first convalescence was quite straight, but became gradually deformed and drawn in, which her friends thought came from lacing too tight. About nine years since, that is, about half-way between her illness and death, her mother describes her as having a cough, the most remarkable circumstance attending which was

the quantity of expectoration, of which she wished to convey an idea to us by pointing to a pint-mug on the table.

When the lower jaw has been broken, and the patient is unable to move his tongue, or the soft parts of the mouth, in the natural free manner, the saliva collects in the hollow parts round the gums and the fractured part. Under these circumstances the mucous membrane round the necks of the teeth is liable to inflame and ulcerate as in salivation, whilst the saliva becomes fœtid; thus adding to the inconvenience of the fracture some of the discomfort of salivation. This affection of the gums, though very irksome, does not appear in general to retard the cure.

The fracture of the lower jaw, when occurring near the chin, is not unfrequently accompanied with a wound of the skin and subjacent parts, extending down to the fractured part. Very frequently, indeed, the gum is torn over the fracture. In both these cases the fracture is compound, and exposed also to the acrid secretion of the mouth. Although the union takes place more slowly under these circumstances than when there is less injury, yet no material delay occurs, not even if the inflammation is followed by suppuration to a small extent, which in general finds a ready outlet. Even if a portion of the bone be exposed both to the air and saliva, it does not invariably separate, but still retains its connection with the surrounding parts.

Fracture of the lower jaw rarely occurs in the mesial line, but still it does happen occasionally. A man was admitted under Mr. Lawrence, with fracture of the lower jaw, at the symphysis, between the two central incisor teeth, from direct violence (blow with the fist), occurring one week previously. No displacement had occurred. The jaw was placed in a pasteboard splint, and united well.

Fracture of the lower jaw may occur in the mesial line, unattended by any laceration of the gum, or any displacement. A fracture so occurring, without any signs, may be very easily passed over unnoticed.

A man applied one morning at the hospital, for a wound on the chin, which had happened from falling down in a fit. The wound was deep, and just in a point likely to break the jaw: no fracture was, however, found by the house-surgeon, and the man was

made an out-patient on account of his fits. At the end of three weeks a seton in the neck was ordered. When the seton was about to be put in, he complained of his jaw being often painful in front. His jaw was found broken, and still loose: he was admitted, but it united very slowly.

It would be difficult to give a satisfactory explanation of the following case. It is that of a woman who suffered from a fracture of the jaw, which injury was followed by most serious and sudden disturbance of the nervous powers of the eye: this affection yielded very considerably to mercury and other means, but ultimately sight was completely lost in one eye.

Mary Burward, æt. 43, admitted Sept. 25th, 1840, under the care of Mr. Lawrence, in good health, with a fracture of the lower jaw near the symphysis, and considerable ecchymosis of the eyelids and surrounding skin, from the passage of a wheel over the head. She continued pretty well for the first two or three days. As the swelling round the eyes diminished, some ecchymosis appeared to have taken place on the ocular conjunctiva; she was, however, able to see distinctly. On the 28th, 29th, and 30th, slight delirium tremens, with restlessness, occurred, which was relieved by gin in small quantities, with porter. She took during these three days, gin Ojss.; porter, Oj.;—these produced complete relief from the delirium tremens.

Oct. 2d.—This morning she said that she had entirely lost her sight, not being able to distinguish light from darkness. The conjunctivæ of both eyes are marked with ecchymosis, chiefly on the temporal side of the eye; no opacity is distinguishable in the cornea or deeper parts; the pupils are very much dilated, and also drawn somewhat upwards; no motion of the irides is perceptible on exposure to a strong light. Pulse about 120, feeble, and free from any hardness; slight pain in the head, not, however, so severe as to induce her to complain without being questioned; the bowels are open.

She was ordered three leeches behind the ears; a blister to the nape of the neck; Hydr. c. Cretâ gr. ijss. every six hours.

Oct. 5th.—No improvement. The pulse is rather more forcible than natural, but still weak; the pupils continue dilated; the mouth is not affected.

Hydr. c Cretâ gr. v. every six hours. C. C. ad ʒviij. behind the ears.

Oct. 7th.—The pain in the head, which was slight, has now ceased; pulse feeble; there is a doubtful contraction of the right pupil.—A blister to be repeated at the nape of the neck.

Oct. 8th.—The blister has produced slight strangury. She can now observe the light of the candle; when held in such a position that the light falls on the nasal half of the right retina, the candle appears like a light-coloured spot. The breath has a slight mercurial fœtor.—To continue as before.

Oct. 9th.—She can now observe an object drawn between the window and her eyes. The pupils are still dilated, especially the left. Mercurial fœtor slight.

Oct. 10th.—She can distinguish a hand, glove, or hat, held before her; the glove from the hand, and the inside of the hat from the outside: these are seen most distinctly with the right eye, the pupil of which contracts distinctly after exposure to the glare of a candle; the left pupil does not distinctly contract. The mercurial fœtor is distinct; the gums are, however, hardly affected.

Oct. 16th.—She continued the Hydr. c. Cretâ in small doses till the 15th, and has had a third blister applied. The mercury has affected the gums, and produced slight ptyalism. The union of the fractured jaw has proceeded favourably, except the formation of a small abscess opposite the fracture. She can now count the panes of glass in the window, tell the finger from the thumb, and distinguish black from white. The right pupil is more contracted than the left, the right being in a condition midway between contraction and dilatation.—To apply another blister, and to leave off all medicine.

Oct. 21st.—The jaw is uniting favourably. The gums are still sore from the mercury. The pupils are much less dilated; the irides are still, however, narrow at the upper part. She can now read large letters, and distinguish the features of persons standing near her.

Oct. 29th.—She has not taken any more medicine. The pupils are still somewhat dilated, but moveable. She can distinguish writing from printing, and the larger letters from each other.

The union of the jaw has proceeded favourably. The gums are still sore from the mercury employed.

Oct. 30th.—The soreness of the gums during the last one or two days has considerably diminished. She can distinguish objects well and clearly with the left eye, almost in a degree equal to that before the accident. She was unable during part of yesterday, and the whole of to-day, to distinguish objects with the right eye, and even now she can only distinguish light from darkness with it. The pupil of the left eye is more dilated than natural; the pupil of the right eye more contracted than the left. The motion of the right iris is not decided; it appears to move less freely than the left; the motions even of the left are, however, less free than natural. Bowels open. General health not worse, and still good.—To apply another blister. Hydr. c. Cretâ, gr. ijss. bis.

Nov. 3d.—The gums are now slightly affected. The left eye remains good; with the right she can now distinguish objects with tolerable clearness. The jaw has united, a small fistulous opening remaining in the situation of the abscess. She is so satisfied with her improvement that she leaves to-day to become an out-patient.—Ordered to continue the Hydr. c. Cretâ.

Nov. 12th.—She came to the hospital to be looked at to-day. The left eye is in appearance natural, and she can read very small print with it. The pupil of the right eye is more contracted than the left, and perhaps not quite so freely moveable; the vision of it is very much impaired, but best in a strong bright light; but in the strongest light she can only trace the largest objects near this eye very indistinctly.

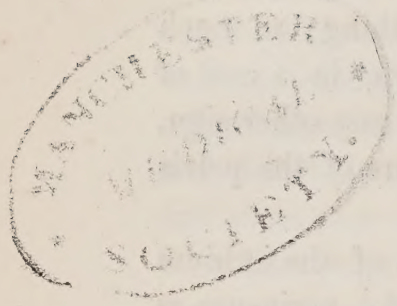
December.—She has returned once more. The left eye continues the same; the right is completely amaurotic, light not being distinguishable from darkness.

The arch of the pelvis will bear a great weight without injury, if the weight is applied only along the arch. A waggon wheel passed over a man's pelvis, from side to side, leaving an ecchymosis of the scrotum and upper part of thighs, but doing no other injury to any part. The man stated that the waggon weighed 1 ton 4 cwt., and the load in it 4 tons 3 cwt.,—in all 5 tons 7 cwt.

The man remained in the hospital three weeks, and then went out well, except some ecchymosis and a very slight lameness.

Laceration of the perineum, with fractured pelvis, independent of the injury to the urethra, is a most suspicious thing; so much so, that the simple fact of the perineum being torn, in a case of violence acting on the pelvis, unaccompanied by any other sign, is alone enough to make one suspect the fracture of the pelvis to be very severe.

When the pelvis is simply broken in the ramus of the ischium or os pubis, it does not seem that the skin of the perineum is often injured by the fracture: if it does happen, it is a very rare occurrence indeed. When the perineum is lacerated, and the finger detects a fracture of the pelvis, it does not always seem clear that the bone has passed through the opening, as the bone is often at some distance from it. Whether the broken part of the pelvis is close to the opening in the perineum or not, the pelvis is very generally broken behind in these cases, either through the ilium, or at the sacro-iliac symphysis, and the lacerated perineum is produced, either by the protrusion of the broken bone through the skin, or by the whole side of the pelvis giving way from the fracture behind and in front; the perineum is thus lacerated, either by the violent extension of the skin, or by the broken bone being carried through the skin. If this is the mode in which the laceration occurs, the presence of a laceration in the perineum, independent of that produced by direct external violence, is an important indication of the extent of injury in these cases.



CHAPTER III.

INJURIES OF THE BONES OF THE LOWER EXTREMITY.

Reduction of dislocation on the ischiatic notch sometimes unexpectedly easy. Cases of dislocated hip in young children. Case of irreducible dislocation of the hip, and also of hip remarkably easy both of dislocation and reduction, both cases probably connected with fracture. Loss of power from simple blows. Fracture of the neck of the femur; advantages of the long splint. Fracture of femur in the lower third into the knee-joint, and its result. Case of laceration of the ligamentum patellæ. Dislocation of knee. Unreduced dislocation of knee. Dissection of a dislocated knee. Fracture of the leg, of the fibula, and of the head of the tibia. Fractures; their displacement, want of crepitus, and accompanying pain. Consequences of fracture arising at remote periods.

Although dislocation into the sciatic notch is generally reduced only by long extension, such is not invariably the case. A stout butcher was admitted into St. Bartholomew's Hospital in the summer of 1841, labouring under a dislocation of the femur into the ischiatic notch, which had only just happened. The man was carried into the operating theatre, the pulleys applied, and every thing got ready for long continuous extension. The cords had hardly been drawn well tight, when the bone quietly slipped into its socket.

Dislocation of the femur may occur in very young children. In the following cases, the head of the bone was in the ischiatic notch in the first, and probably in the foramen ovale in the second case.

A girl, five and a half years old, was admitted under Mr. Stanley, with a dislocated hip. At 6 P.M. on the previous day, a portion of earth fell upon her. On admission the left lower limb was shortened, inverted, the toes resting upon the great toe

of the right foot; the head of the bone felt at the upper and back part of the sciatic notch. No abduction could be performed. Extension was made without pulleys for two minutes, when the bone slipped in, and remained there. Recovery was complete; she went out, walking quite well, in about three weeks.

A boy, aged 5 years, was admitted under Mr. Vincent, labouring under a dislocation of the left thigh-bone. The limb was colder than the opposite one, and of a bluish colour; everted, not very moveable; the knee and groin both bent, and the limb resting on the toe. When the child lay on the back, the head of the bone could hardly be felt; but on making him stand up, the head of the bone could be felt beneath the psoas and iliacus, with the artery running over it. The want of any prominence, from the great trochanter being carried inwards, was very marked, as also a sinking in at the lower edge of the gluteus maximus muscle. The head of the bone could hardly be felt when the child lay down, but could be distinctly rotated with the thigh-bone when it stood up. No crepitus was any where found. The accident happened by the child falling on its legs whilst riding on the beam of a cart, which suddenly proceeded.

The limb was extended with little benefit till the thigh was well adducted, when the bone quietly slipped into its socket, and the blue colour of the limb began to subside directly. The limb now became quite natural in relations, motions, and form. He went out in about three weeks quite well.

In the two following cases some fracture had probably taken place in connection with the acetabulum. In the first case it prevented the reduction, but in the second (if the patient's account was true), it seemed as if it allowed the reduction to take place easily, at the same time that the dislocation was liable to recur.

A young man, aged about 20, three weeks before admission dislocated his hip by a violent fall on the side, from chalk falling upon him: as the limb could not be reduced in the country, he was sent to the hospital, and admitted under Mr. Lawrence. The right limb was shortened an inch and a half, much inverted, and the head of the femur easily felt on the lower and back part of the dorsum ilii.

The limb was extended powerfully, nearly in a straight line, for

three-quarters of an hour with the pulleys, without reducing it. The head of the bone was drawn right down to the tuber ischii, and evidently below the joint. Crepitus was said to be felt by three persons present on rotating the limb. No bad symptoms followed.

The man objected to any more trials.

Charlotte Edwards, æt. 17, admitted July 3d, under Mr. Stanley, labouring under dislocation of the right femur on the sciatic notch, with some inversion of the limb, some bending of the knee, altered direction of the limb, sinking of the trochanter, and increased distance between it and the anterior superior spine of the ilium, but without shortening. The marked signs were, the direction of the femur, and the fixed condition of the head of the bone.

It was reduced in twenty minutes by extension in the common way. The exact time of the passage of the bone in was not decided; but the patient, at the end of twenty minutes, said that her limb could be moved, and that "something went in with a tick."

The accident happened from a simple fall on the ground whilst pumping. She gave the following account:—About six months since she was kicked by a horse, and became lame immediately, on her right leg; she was taken to a workhouse, where she lay in bed for three weeks, and then walked on crutches for two months: one day she fell down by her bed: something went in with a tick in her right hip, and her limb was immediately restored to its natural condition, so that she could put her foot to the ground. She lay in bed for the day, did not again use her crutches, and began to walk about with a stick, but becoming stronger went to service. The tick, when she fell down, so exactly resembled the sensation of reduction at the hospital, that she knew by this that the bone was in. She remained in bed for some days, and then went out well.

Looking to the direct violence of the original blow, the extraordinary reduction from the fall, the second occurrence of the luxation, and the silent and very gradual reduction, it is not improbable that some fracture, as of the acetabulum, may have occurred in the first instance with the luxation.

Labouring men are admitted from time to time, who in their occupation, or from a fall, receive a violent blow on the back;

they are unable afterwards to stand, or to move their legs well for some time, but gradually get well, frequently without treatment, and resume their occupation.

In the winter of 1840-41, several persons in this condition were admitted nearly together, as well as others in whom pain in the back was the chief complaint. In some of these cases local abstraction of blood was employed, and apparently with most benefit, when the injury chiefly consisted in this slight degree of paralysis. When the blow is on the back, the motion of all the parts below is generally equally affected, but in one case the chief affection consisted in a weakened condition of the arms, from a blow on the back, the legs not presenting weakness in the same degree.

From a violent blow on the hip joint and loins the patient is sometimes partially paralysed in only one lower limb; this may arise from the blow on the muscles and joint, but in others the feebleness resulting from the injury seems to be caused by the blow, either on part of the cord supplying that part, or by injury to the ischiatic nerve, which is not unfrequently exactly in the situation of the blow.

There are two fractures constantly occurring, which, after the most careful examination, are sometimes doubtful, which with all care are most serious injuries, and which, if neglected, are almost certain to end in a permanent injury to the limb; these two injuries are fracture of the lower third of the radius, and fracture of the neck of the thigh bone.

It is perhaps more common to meet with a fractured neck of the thigh bone wanting in some signs of fracture, than possessing all, yet there is almost always some sign or other. Any one sign may be utterly wanting, but all are hardly ever absent; the sign present may be at best doubtful, and often is so, but a doubtful sign in reasoning is often a very certain one in practice.

There can be no doubt that every injury to the hip, especially in old people, be the signs ever so doubtful or slight, so as they do exist, requires to be watched most anxiously, and cannot be pronounced at once, and sometimes even for many days, not to be accompanied with fracture. The result alone can test the point, and nearly always the result is, that the bone is broken.

The two following dissections illustrate two points: in the first case the want of eversion depended on the peculiar form of the fractured surfaces; in the second the fractured portions were so close to each other, that even in the dead body the fracture was doubtful.

Mary Nick, aged 66, was admitted under Mr. Stanley, having been knocked down on her right hip by two drunken men. The limb was apparently shorter by measurement to the amount of one inch, unattended however by any eversion, the limb being laid straight out and quite powerless. She gradually died.

The synovial membrane was only torn at the upper and front part of the neck of the bone, the rest remaining quite entire, and extended between the slightly displaced parts. The neck was broken irregularly, so that the lower portion was wedged slightly into the upper, and overlapped by it in front.

The fractured portions were thus somewhat wedged into each other, whilst the eversion was prevented by the upper overlapping the lower portion. In consequence of the slight laceration of the membrane on the neck of the bone, the two parts were fixed in the position, which their line of fracture caused them to assume.

An old woman was brought for dissection from St. Giles's workhouse, having died there of asthma. The left leg was somewhat everted, and apparently shortened. On measuring the two limbs, the difference in favour of the right was at the best but a quarter of an inch; so little indeed was the difference between the two limbs, that tightening the string slightly in measuring the right leg removed the difference. The thigh moved well, and without any crepitus on the pelvis. The pelvis was a little crooked.

The limb moved so well, and the difference in the length of the two limbs was so little, that even in the dead body it was not clear whether the neck of the bone had been broken, or whether the peculiar appearance of the limb depended on some curvature of the spine, and consequent change in the relations of the pelvis and hip.

On opening the left hip joint, a fracture entirely within the capsule, running right through the middle of the neck, was seen. The synovial membrane covered the line of fracture perfectly, and presented hardly any signs of old injury; the two portions were

well united by moderately firm fibrous substance; the lower portion was drawn up, so that about one quarter of an inch of its fractured surface projected above and beyond the fractured line of the upper portion, whilst below, a portion of the upper part projected beyond the lower edge of the neck. The line of fracture extended from above downwards and inwards, so that a long angle was formed at the lower part of the neck: this angle was driven into the head and fixed there, some part of the neck being also crushed above into its interior substance. The head of the bone was slightly rotated from above downwards and inwards, the two ends of the ligamentum teres being at the same time slightly approximated.

The neck of the opposite femur was very horizontal, and slightly twisted forwards and downwards.

The bed of Mr. Earle, and the bent position on the side, have been discontinued latterly in great part at St. Bartholomew's Hospital, for the long straight splint. The limbs unite better, the trouble is less, and the expense is much less; the high beds being very dear, and spoiling a blanket each time that they are covered. There is also another evil in hospitals; if fleas or bugs once get into a high bed, it is very hard to get rid of them. There are, however, some cases where a high bed is good. If a patient has two broken thighs, or legs, a high bed allows the chest to be raised, and thus he can move, and is less liable to risk in vomiting. It is said, that a fracture in the upper third is not so liable to rise on the high bed, as the lower portion can be brought up to meet it. This is very doubtful, indeed, in practice.

Thighs broken in the middle, and not fully extended, generally unite with the lower end of the upper part on the outside, or in front of the upper end of the lower portion. This is very hard to prevent on the high bed, and a mere matter of chance on the side; but with a long splint, and a long inguinal band right up to the axilla, as high as can well be done, it is partially prevented.

The femur is occasionally broken transversely just above, as well as at the same time vertically between the two condyles, so that the two fractures resemble the letter T; the upper fracture representing the horizontal line, and the fracture between the condyles the descending line of the letter. This injury is charac-

terized by complete lameness, and a bent condition of the knee, with a falling of the knee and leg backwards, so as to resemble to a certain degree dislocation of the knee backwards; from which it is, however, readily distinguished by the crepitus, the facility of reduction, and occasionally also by the increased breadth of the knee from the separation of the condyles, to a certain degree, from each other.

Dislocation of the patella is occasionally complicated with fracture of the lower third of the femur. In the summer of 1843, a man, about 60 years old, was admitted into St. Bartholomew's Hospital, under Mr. Lawrence, labouring under a dislocation of the patella outwards, which was easily reduced. The leg and thigh, however, formed an obtuse angle with each other, the point of intersection being just above the patella, at which part obscure crepitus could be felt; the patella, even when reduced, appearing to be somewhat sunk between the condyles. The man recovered, but with an impaired condition of the limb.

In children, the lower portion of the femur, constituting the epiphysis, is occasionally separated by the knee being twisted in a wheel, between beams, or by the child being accidentally suspended by one knee. This injury requires very close attention, from the injury to the soft parts which such violence necessarily causes, from its connection with the knee joint, as well as from the distortion which may occur. The epiphysis, after this injury, is very liable to pass forwards and rest on the lower part of the shaft of the femur, which latter passes backwards into the popliteal space.

Where union takes place, and the displacement is not very great, the impediment to motion is not considerable, motion being sometimes perfect even when the shortening is to the extent of one inch—a circumstance depending on the motions of the patella not being interfered with by the projecting portion of bone, as where the upper projects in front of the lower portion. The lower portion in this fracture may be carried either behind or before the upper portion, whilst occasionally at the same time a piece of bone is split off, and stuck so firmly into the neighbouring muscles, as to be quite immoveable.

This accident is generally accompanied with a very oblique fracture, on which account the limb is very likely to be shortened more

or less. When the upper portion becomes situated in front of the lower, it impedes the motion of the knee joint; the patella being sometimes drawn up in extension of the limb, close to the projecting point of bone. The best mode of treating fractures of the femur near the knee joint, as well as most fractures into the knee joint, is to extend the limb quite straight; by which the even surface of the sound bone presses the irregular articular surfaces of the broken bone firmly and evenly; the limb being at the same time placed in the most suitable position in case anchylosis should occur. Although the straight position is desirable for these reasons, yet this form of fracture sometimes does very well on the double-inclined fracture-bed of Mr. Earle, by which the occasional tendency of the knee to fall backwards is very effectually prevented by the angle of the bed.

This kind of fracture unites slowly, and in general requires a confinement of six to seven weeks: the tendency to displacement of the lower portion backwards sometimes does not exist, and can in general be easily remedied. The two condyles are apt to separate somewhat from each other, and thus to allow the patella to fall somewhat backwards, and render the front part of the knee rather flat; the external condyle is also liable to become situated on a line rather anterior to the internal, and though capable of being pushed backwards often remains very slightly prominent.

These cases generally do well, and the recovery is complete; even if the condyle is prominent, or somewhat separated, the functions of the limb are not generally impaired in any material degree.

The patella may be torn away from the tibia by muscular violence; and this accident is extremely hard to cure.

John Chesterfield, æt. 59, admitted under Mr. Stanley, Sept. 21, 1842. A stout muscular man, labouring under an injury to one knee. The patella is drawn up in front of the femur as much as two inches, or even more, above its natural situation; the bone entire and smooth, without apparent separation of any part; from the drawing up of the patella the knee joint is only covered by skin, and appears quite bare. No piece of bone appears to be remaining attached to the ligamentum patellæ, so as to allow of this being considered as a fracture in any way.

The man states that he was wheeling a barrow up an inclined plank, when the wheel moved somehow in the wrong direction,

and threw him off his balance: fearing that the barrow and he would fall together, he instinctively threw himself backwards and jerked his legs up in the air, and he believes that in this act he suffered the injury.

On being admitted, he was placed on a high inclined bed.

29th day.—The patella has descended nearly but not quite to its natural situation; the parts around the knee are swelled and thickened.

He still continues on the high bed.

This man went out of his own accord, the parts being still somewhat separated, and the limb then not very useful.

Jan. 27.—This man has been readmitted; the knee inflamed and painful, whilst the patella is a full inch and a half above its natural situation, and situated entirely on the front of the femur.

Feb. 12.—The knee is painful, the patella not yet depressed.

Feb. 20.—When he walks about, the knee inflames; this however, partially subsides with rest. The patella is so much displaced, that its lower end is as high as the natural position of its upper edge.

April 1.—He has been discharged. The knee is free from pain or heat, quite straight, and able to bear his weight. It is, however, not capable of being bent, and is thickened considerably in the parts round. The inflammatory changes appear to have been completely arrested; the joint, however, is not sufficiently cured to allow him to walk about, or to follow his employment. The patella is still above the joint, resting entirely on the femur.

Dislocations of the knee are not common. Here are, however, two cases, one of dislocation of the knee forwards, and the other outwards.

A man, aged 19, was admitted, under Mr. Lawrence, Dec. 29, 1839. He was carried in lying on his abdomen, one limb shorter by three inches than the opposite one, the tibia evidently driven forwards, its flat articular upper surface being distinguishable, and the condyles of the femur projecting into the popliteal space; the ligamentum patellæ was relaxed. When drunk, he had jumped ten feet from a height with his knees bent, came on his feet, and then fell on his back. He became immediately sensible of great pain, and tried to relieve it by pressing on his knee.

The knee was easily reduced by extension, and laid on Mr.

Earle's bed. Next day no difference was perceptible in the two limbs, and on January 12th he was discharged, able to run and walk quite well.

Ralph Harvey, 35—40, admitted, Nov. 18, 1842, under Mr. Stanley, with injury to the right knee. The femur is dislocated outwards, so that its inner condyle rests upon the outer tuberosity of the tibia, its anterior surface looking forwards and outwards. The tibia is carried inwards in the same degree that the femur is dislocated outwards, the anterior edge looking forwards and inwards, whilst the foot at the same time with the leg is inverted. The patella lies flat on the inner condyle, its edges being forwards and backwards; the knee being semi-flexed and fixed. Just before admission, he was riding in a cart, and fell out: his leg being caught by some iron, fixed him for a short time before he came to the ground: when he fell, he tried to walk, and moved a little, but his knee gave way, and he came down to the ground.

The pelvis was fixed by a towel round the thigh, the leg was extended slightly, and the knee went in directly without a snap.

Dec. 9.—He has now been in about three weeks; the knee has its natural appearance, and he leaves the hospital with crutches.

He called afterwards at the hospital, walking so well as to induce him to begin to walk without crutches.

This case recovered completely; yet a partially dislocated knee unreduced may make a very useful limb, as in the following case.

A man, aged 41, was in the hospital, for some ailment, but had also a deformed knee.

When aged 19 years, he fell on his left side, carrying a weight, and was put to bed for fourteen days: he then got up, and walked about with a stick, and was well in three weeks from the time of the accident.

The patient can walk twenty miles a day easily, and has good use of his limb.

In this patient the left knee joint presented a crooked appearance, when viewed from the front. The femur appears to be thrown partially forward to the patella, more so on the inside than on the outside; the patella is thrown very much to the outer side. The tibia is drawn backwards, and moved from its natural position so much that the smooth internal surface is directed

almost forwards. The ligamentum patellæ assumes a direction from above downwards and outwards.

An old woman was brought for dissection, with an old unreduced dislocation of the patella outwards.

The aponeurosis of the extensor cruris formed a thick covering over the front of the joint, with small portions of bone in it, one particular piece being situated over the condyles in the natural situation of the patella.

The femur was twisted so that its front part looked inwards instead of forwards; the ends of the bone were, however, on the two tuberosities of the tibia.

The cartilage was partially gone, over the condyles of the femur; a smooth surface was formed for the patella, which lay right on the outer surface of the outer condyle. The front edge of the patella had much new bone added to it, whilst its articular surface was hollowed out to fit the new smooth surface of the condyle of the femur. The capsule had been torn, and was now thickened and attached to the front of the patella, enclosing its anterior half. The ligamentum patellæ and external lateral ligaments were quite healthy, but much twisted. The internal, lateral, and crucial ligaments were quite healthy. The posterior ligaments were thickened. The knee could be bent, but only partially extended. The tibia was thin, and had broken accidentally, probably after death.

How far can a man walk with a broken leg?

A man, aged 32, was admitted into St. Bartholomew's Hospital, under the care of Mr. Stanley, March 8th, 1843, labouring under a transverse fracture of the right tibia, a little below the middle of the bone, accompanied with the fracture of the fibula in the lower third.

This accident happened at Highgate this morning. The shaft of his cart fell, and then the horse kicked his leg. The man now got a short crutch, about the length of a walking-stick, and walked to the Hospital in four hours. The leg was very crooked on admission, and the nature of the injury was ascertained by Mr. Stanley. He was cured in about six weeks.

In the great majority of cases fracture of the fibula may be detected; occasionally, however, doubt still exists of the real nature of the injury, even after all means have been tried. In these

cases the following plan is useful: place the right hand with the ends of the fingers on the fibula midway between its two extremities, and press it towards the tibia. Even in the stout fibula of a healthy man the bone will often play between its two extremities under this pressure. If a general easy movement is found, by passing the left hand up and down, to take place all the way between the two attachments of the fibula, fracture is very improbable indeed, whilst occasionally the pain and want of free motion produced by this pressure shew that fracture has taken place.

When the tibia and fibula are broken near the ankle joint, without any bruise or displacement, the detection of crepitus is sometimes very difficult, and can only be ascertained by firmly grasping the ankle with one hand, and the lower third of the leg with the other, and attempting to move the parts slightly on each other. Unless the greatest caution be observed, fracture in this situation may pass unnoticed. Occasionally any displacement is so entirely wanting, that it is necessary to hold the part just above the injury firmly with one hand, and to press the lower part firmly backwards with the thumb and fingers, when the acute pain with a very slight crepitus shew the existence of fracture.

When the head of the tibia is broken transversely across, the injury is most easily detected by grasping the patella and upper part of the tibia with one hand, and bending the knee to a slight extent with the other hand placed near the ankle, when the injury will be detected by a slight yielding of the part. If the leg were examined in the extended position, this injury might pass unnoticed.

When the tibia and fibula are both broken about the upper part of the middle third of the leg, the extended position of the limb is the best, and in general allows the limb to lie smoothly without any unnatural prominence at the seat of injury; if with fracture in this situation the leg be placed in the flexed position on the side, the lower end of the upper portion is very liable to project against the skin, and produce a lump there, after union has taken place. This projection may, indeed, be generally prevented by an extra straight splint in front of the leg, with a small pad on this part; but even this will not always succeed, and may be followed by ulceration of the skin in that situation. When the two bones are broken about midway between the knee and

ankle joints, the limb lies evenly either on the back or side, unless the fracture has taken some particular direction.

The following plan I have often seen employed, by Mr. Lawrence's directions, with the greatest benefit, in cases where the leg was inclined to come forwards after fractures or injuries low down in the limb. The leg is placed in the bent position on the outside, with a common side splint placed above and below, slightly hollowed out to fit the leg. In addition to these, two straight splints are used, padded on one side, one of sufficient length to extend from the patella to the upper part of the lower third of the leg, the other long enough to reach from the hollow of the knee to beyond the heel. If the straps be now passed round the leg, including the shorter of the two straight splints on the front, and the longer splint on the back of the leg, along with the two hollow splints on the upper and under side, the tibia and fibula above the fracture will be pushed backwards, whilst the foot with the part below the fracture is pressed forwards. In this manner the tendency of the tibia to pass forwards, after simple dislocation or fracture near the ankle, is effectually prevented.

In the following cases of fracture some reason existed in one instance, and none in the other, for the irregular union. A man, aged 60—70, broke his leg, and died in about eight weeks. The tibia was broken about its middle, the fibula at its inferior third; the two portions of tibia could not be rendered parallel, although the limb could be extended to its natural length. The cancellous tissue of each extremity of bone was rendered compact, but no decided union had taken place between the two opposed extremities; the cancellous tissue of one end was opposed to the compact of the other bone; the limb was only slightly united, but as long as the opposite one. There was no apparent cause for the obliquity, only the muscles were strong during life, and when the limb was extended, violent spasms immediately took place.

Here there was no very evident cause for the displacement. In the following case the cause was more apparent, or perhaps probable. An old woman, with flat feet, broke her leg in 1840-1841, at the junction of the middle and lower thirds; the leg united firmly, but in bad position. The lower parts of bone were drawn upwards, backwards, and outwards. This displacement was just

that which the peronei muscles would cause. This woman had flat feet—a deformity accompanied with tense peronei, and for which they are often divided. Could these peronei muscles be the cause in this case? She unfortunately put it to a partial test. In 1844, she broke the other leg, but high up in the upper third, and consequently out of reach of the peronei. No displacement occurred here.

Amongst the subjects to which Mr. Stanley particularly directs the attention of the pupils, there are few on which more stress is laid than the diagnosis and treatment of difficult cases of fracture of the limbs. Amongst these points are included, firstly, the importance of considering the degree of pain in the situation of a supposed fracture, and its great value in cases where crepitus is absent. Secondly, the necessity of bearing in mind to how great a degree many fractures gradually right themselves, and the little that is often gained by attempts to place every thing straight at an early period; and thirdly, the importance of firm œdema rapidly forming over a supposed fracture. These are points not simply told in the clinical theatre, but shewn as the return of the accident weeks successively comes round. The degree of pain caused by the necessary examination of an injured limb sometimes assists in distinguishing a fracture from a simple bruise. Although a mere strain or bruise is occasionally accompanied with the greatest suffering, yet extreme pain on the slightest degree of motion, more especially when that motion is not accompanied with extension of any ligaments, is in itself a most important indication in favour of the existence of fracture. This extreme pain, and the rapidly forming but well-defined œdema, are more frequently found in injury of the bones which lie superficially, than in fractures amongst the deeper seated parts; and if any bones were selected as those in which fracture was attended with extreme pain on slight motion, the metacarpal and metatarsal bones, with their phalanges, or the lower ends of the radius, tibia, and fibula, might be chosen. Where the pain is of a pricking character, or like that produced by the presence of a foreign body wounding the part, the character of the pain is distinguished from the dull aching of a sprain, and is in favour of fracture; but in the great majority of injuries, where any doubt of its nature exists, the

patients are unable to describe the peculiarities of their pains and suffering. Instances of but little suffering resulting from fracture, occasionally, however, present themselves in children as well as in adults. The little suffering not uncommonly experienced by children from fracture of the collar-bone is sometimes very marked, and a labouring man, with fracture of both bones of the fore-arm, has been seen to clench his fist and brandish his arm in a fighting attitude, without any apparent uneasiness.

In 1844, a boy came in with an injured leg; he could not walk, and screamed in agony when his leg was examined; but there was no crepitus or yielding. There was, however, pain, and the leg was puffy over the painful part. Mr. Stanley considered it to be broken. In about two or three weeks the limb had glided a little forwards at this line, and shewed clearly that it had been broken. The case did well.

In 1844 an old woman broke her leg. The crepitus could not be felt for the first week; there was, however, great pain and yielding of the bone on trying to bend it at the painful part. At the end of one week crepitus could be readily felt.

A woman, (1840-41), was knocked down, and a wheel went over her leg, crushing the skin. She was admitted under Mr. Lawrence. There was no clear crepitus or fracture on the most attentive examination, but the limb was placed carefully on its side and watched. In a few days the upper portion came forward, and pressing against the injured skin came through. The leg united well.

These are a few cases out of many which have well illustrated the facts, that a bone may be broken and its fracture be unaccompanied by the common signs, and that bones often come of themselves into that position in which a surgeon cannot place them at an early period, and would often do harm by attempting to effect.

When a man breaks his leg, the fracture generally unites, and does well, no subsequent ailment arising from it. Such, however, is not always the case. A growth may arise six-and-forty years afterwards, from parts which have remained hard over a fracture requiring the removal of the limb, as in the following case.

A man, aged 50, was admitted Nov. 1, 1842, under Mr. Stanley, labouring under a large fungous ulcer of the left leg. The

left leg below the knee is wasted considerably, and marked with large veins; the foot is crooked, the inner side chiefly touching the ground. The growth is situated in the upper part of the lower third of the leg, on its front and inner sides. The growth is three inches and a half in extent from above downwards, and three inches from side to side, and projects about one inch and a half above the skin; the skin appearing to be bored through from below by it, as well as to be overhung by it round the edges. The surface of the growth is rough and uneven, of a brown and red colour, covered with fœtid watery secretion, occasionally bleeding and very painful.

He is apparently in good, but weak health: a native of Anglesea. When four years old he broke his leg, in the situation of this growth: this fracture united, with the separation of a considerable portion of bone: the part remained hard, and occasionally painful, till five years and a half since, when he hit his leg on this spot, and first became subject to an open sore: about a year and a half since, the growth now existing first began to sprout out of this sore, and has continued to increase ever since; the pain in it being severe, and the bleeding from it frequent. The limb was removed.

The tibia exhibited an obliteration of its medullary cavity above the growth, which arose in connection with the line of a very oblique old fracture; the compact tissue of the bone was also considerably increased in quantity round this fracture. The growth extended down to, and formed a mass united with, and forming part of the periosteum; this membrane being inseparable from it in the least degree. The surface of the bone below the growth was more vascular than the other part of the external surface of the bone; the medulla, a very considerable portion of which existed immediately beneath the growth, was red, very free from yellow fat, and near its junction with the compact tissue marked with distinct vessels.

In the two following cases, distortions resembling those of club-foot occurred from fractures; one of the inner malleolus, the other of both malleoli.

A girl, aged 15, was admitted, under Mr. Lawrence, into St. Bartholomew's Hospital, lame of one leg: the inner malleolus is

depressed, the ankle joint fixed and only very slightly moveable. The heel is elevated, and the tendo-achillis tense. There is a cicatrix over the tendons just above and behind the inner malleolus; the foot is somewhat inverted, the inner edge being slightly elevated. During the last six months the lameness has been increasing. Two years since she appears to have fractured the inner malleolus: this was followed by lameness, and the formation of an abscess nine months since behind the tibia: this abscess is now healed, leaving a cicatrix, by means of which the tendons of the tibialis posticus and flexor longus pollicis are probably adherent to the bone.

Richard West, æt. 60, was admitted Feb. 22, 1843, under Mr. Vincent, labouring under a distortion of the foot, which, from the accompanying pain and lameness, affects his health, and prevents him so completely from following his trade that he wishes the limb to be removed.

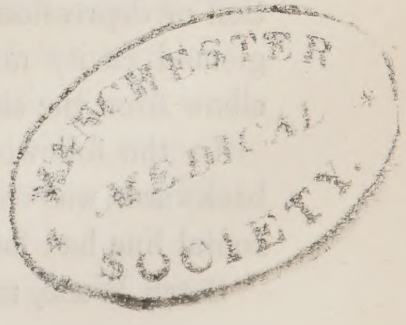
At twelve years of age (forty-eight years since) he twisted his foot and ankle in a fall from a tree, and hurt his foot a week or two afterwards, so that he was obliged to wear a boot to keep the parts straight. At fourteen years and a half of age he left off the boot, and has since allowed the foot to assume the present unnatural position.

Dissection of the foot.—The foot is placed at an obtuse angle to the leg, the heel being elevated, with depression of the metatarsus and toes: the foot is also arched, with shortening of the distance between the toes and heel, whilst the upper surface looks upwards and outwards, and the under consequently partially inwards. The skin of the foot is generally thin, and is separated from the subjacent parts in front of the ankle by two bursæ, one being of considerable size. The gastrocnemii, tibiales posticus and anticus, flexors and extensors of toes and great toe, as well as the three peronæi, are all wasted and fatty, which condition is also slightly presented by the extensor brevis digitorum, as well as by the flexor accessorius and interossei of the foot. The abductores pollicis and minimi digiti, as well as the flexor brevis digitorum, are small, but red and healthy; the change thus implicating the flexors and extensors of the ankle, and the muscles of the foot especially connected with them. The cartilage of the astragalus

is partially ulcerated, with disease still in progress; the other joints, however, appear sound. The anterior ligament of the ankle, especially on the outer side, is thickened, and the ligamenta calc. cuboid. and calc. navic. are much shortened. The groove of the tibialis posticus and flexor digitorum appears to be implicated in a fracture of the back part of the internal malleolus, so that these tendons come nearer the joint than usual; a portion of bone also being separated from the internal malleolus, has, by rubbing against the tibia, given rise to a growth of bone. The parts around the fibula are much thickened, and containt he lower part of a portion of the articular extremity of the fibula, separate from the rest of the bone, but attached to the anterior ligament of the ankle joint.

In the following case the disease of the ankle appeared to have originated in an unsuspected fracture of the malleolus.

A man was admitted with a swelled ankle, with fistulous openings. Ten months since he sprained his ankle, but walked about during the three following months: he then went to bed, and has been there more or less ever since. He died of diseased kidneys. The ankle joint was bare of cartilage on the ends of the tibia and fibula, as well as on the surface of the astragalus: the synovial membrane was thickened, and the exposed bone was red, raw, and rough. A fistulous passage led into the joint. The lower part of the tibia, with the inner malleolus, had been broken off obliquely: the fracture had completely united, but not quite in its natural position, the broken portion being driven into the substance of the tibia.


WORCESTER MEDICAL SOCIETY

CHAPTER IV.

INJURIES OF THE BONES OF THE UPPER EXTREMITY.

Alteration in length of the dislocated humerus. Advantage of extension upwards in some cases. Dissection of an unreduced dislocation on the inner side of the coracoid process. Case of compound dislocation of the humerus into the axilla. Case of laceration of the circumflex nerve, with fracture. Fracture of clavicle. Union of clavicle in peculiar position. Cases of dislocated thumb. Injury to elbow. Severe fractures of arm and leg.

In dislocation of the shoulder joint it is sometimes hard to account for the strange results of measurement. Even when the head of the bone is carried down into the axilla, the arm is of the natural length in many cases; whilst, where the head of the bone is carried into the subscapular fossa, and in contact with the subscapularis muscle, the shortening is occasionally excessive, and more than can be readily accounted for. Now in both these displacements the head of the bone is carried towards the central line, whilst the elbow is at the same time separated in an unnatural degree from the side; and as the acromion, from which the measurements are taken, remains fixed, the distance between the acromion and the outer condyle of the humerus is lessened. The degree of elevation or depression of the head of the bone above or below the glenoid cavity may thus be concealed by the separation of the elbow from the side.

In the following case of dislocation, extension upwards and backwards was employed with success, after extension in a horizontal line had failed:—

Sarah Wade, æt. 62, admitted April 27th, 1843, into St. Bar-

tholomew's Hospital, under the care of Mr. Lawrence, labouring under a dislocation of the head of the right humerus into the axilla. The ordinary signs of dislocation were present, the head of the bone being apparently on the axillary edge of the subscapular fossa, whilst the distance from the acromion to the outer condyle was lengthened by about three-quarters of an inch.

Six weeks since she fell down, with her arm thrown forwards, on her hand. The bone slipped out of its place, and she was seen by a medical man, who tried to reduce it on the heel for two hours, but in vain. Till one week before admission she suffered much from pain in the shoulder, with numbness in the arm: this pain has, however, latterly become somewhat less.

The arm was extended in an almost horizontal line for about twenty minutes, with the pulleys, without the least effect. She was now laid on her back on a bed, and the arm extended obliquely upwards and backwards, when the head of the bone slipped, in about a minute and a half, into the glenoid cavity; but on the arm being brought to the side, it slipped out again. This occurred twice, when, at last, on the head of the humerus passing into the glenoid cavity, the hand was passed into the axilla, pressed upwards and outwards, and used as a fulcrum to turn the bone on, whilst the arm was depressed, and brought well across the chest; the head of the humerus being thus kept at the upper and back part of the joint. She stayed in the house a few days; the bone remained in its right position, and the arm was gradually recovering all its powers slowly.

The bone in this case slipped out twice at the lower part of the glenoid cavity, and was retained at last by keeping it up against the upper and back part of the joint. The following dissection* shews a condition of parts which presented just injury enough to account for this peculiarity:—

"In an old woman, who died in the hospital last August, we had an opportunity of dissecting a dislocation of the shoulder-joint, which had remained unreduced for evidently a very long period. The long head of the biceps adhered to the groove in which it lies. The lower part of the glenoid cavity had been

* Professor Syme, in Edinburgh Medical and Surgical Journal, vol. xxxv. p. 241.

broken off, and still remained loose, being nourished through its adhesions to the capsule, and a new articulating surface had been formed on the inner side of the neck of the scapula."

A stout man dislocated his left humerus, and had it reduced, but with considerable force. In a few months he applied, not being able to elevate his arm.

The deltoid acted well; the biceps was flabby, and the two spinati muscles were thin and wasted. Looking to the good condition of the deltoid, the circumflex nerve was here probably sound, and the injury muscular. In the following dissection the spinati and biceps muscles were chiefly injured:—

An old woman was brought for dissection, with old unreduced dislocations of the right shoulder and left patella. Casts were made, and the parts preserved in the Museum of St. Bartholomew's Hospital.

The right shoulder was flattened; the hollow below the acromion, and the lump below the clavicle, were very marked. The arm was shortened one inch.

The deltoid, pectoralis major and minor, were not much wasted, nor very thin. The head of the bone lay under the clavicle, on the inner side of the coracoid process on the subscapular muscle, a very little part of it lying on the rib. The outer and the back portions of the capsule were entire, and extended tightly to the neck of the bone; the head of the bone was chiefly covered by firm thickened tissue. The capsules, old and new, thus formed, were lined by a synovial membrane. On examining the muscles, the tendons of the supra and infra spinatus, and teres minor, were found torn off the bone, but fixed to the capsule. The tendon of the teres major was entire, and had its natural relations. The long head of the biceps had no relation to the glenoid cavity, but ceased to be visible at the upper part of the groove, in the new adherent tissue. The subscapularis was attached to the lesser tuberosity, as well as to the edge of the glenoid cavity, being flattened out beneath the head of the humerus. The plexus of nerves, axillary artery and vein, lay over and in front of the head of the bone. The glenoid cavity was entire; the glenoid ligament and cartilage were perfect; the joint was, however, covered with firm cellular tissue united to the cartilage and capsule.

Compound dislocation of the shoulder joint is very rare, but occurred in the following case.

George Mangle, æt. 19, admitted Jan. 26th, 1842, under Mr. Lawrence, labouring under a compound dislocation of the right shoulder, in consequence of having hurt himself in a threshing-mill. The skin was torn in a semicircle at the back, beneath and a little in front of the joint. The brachial artery could be felt pulsating, but neither it nor the plexus were exposed. The head of the bone rested on the inferior costa of the scapula, but was not visible; the finger passed between the muscles, however, reached it. A portion of the latissimus dorsi hung out, and was cut off by the house-surgeon. The dislocation was easily reduced with slight extension, and the wound was then sewed up.

The man had some very slight fever afterwards, with a small suppuration near the joint, which was let out. He went out Feb. 20th, able to raise his arm to a certain degree, and to perform voluntary motion. The deltoid was diminished in size.

On March 11th, three months after, he was seen. The wound quite healed, the shoulder much diminished in size, the power of elevation nearly lost, and the motions chiefly underhand.

In this case of severe injury, either nerves or tendons might well be torn. The following case is of interest in connection with it:—

A man was admitted, in the summer of 1840, with a severe injury to the shoulder, and died of delirium tremens. On examination, the humerus was found broken high up, the capsule of the joint opened, and the circumflex nerve torn completely across.

The same dislocation, in the same man, may be reduced with ease or difficulty according to his condition. A man was admitted sober into St. Bartholomew's Hospital with a dislocation of the humerus into the axilla, which had occurred several times before; but which, however, required the pulleys. In a day or two he again came, but drunk, with the arm dislocated: the dislocation now went in readily on the heel.

When the clavicle is broken in the outer third, the broken portions are very frequently not separated from each other, in consequence of the strong attachments of the conoid and trapezoid ligaments to the part, which, with the firm muscular attach-

ments above and below, as well as the fibrous connections with the parts around the shoulder joint, fix it firmly. The absence of any inequality, as well as of crepitus, render the detection of fracture in this situation often very difficult; the nature of the injury is, however, rendered more or less plain, in general, by a consciousness of injury, the description of the accident, a weakened and painful condition of the arm, and pain over the injured spot. So great at times is the pain produced by pressure over the injured spot, that a strong man, on the clavicle being pressed on its outer third, will scream out, and describe the pain as resembling the pressure of an immense and unbearable weight.

The clavicle is situated so directly under the skin, that any irregularity in its outline is plain, especially in women, and occasionally very painful, from pressing on the plexus of nerves. The most common irregularity consists in the prominence of the outer end of the inner fragment, which rides over the outer and depressed portion. This inconvenience is often extremely difficult to obviate, and may occur from the simplest fracture; indeed, it occasionally happens that a comminuted fracture of the clavicle unites in a straight line, and with less unevenness than a simple fracture. A patient applied at the surgery of St. Bartholomew's Hospital, in whom, the collar bone having been broken near the sternal extremity, the broken portions had united very irregularly. The short sternal extremity had remained fixed at its union to the sternum; the broken end had been drawn obliquely upwards, whilst the remainder of the clavicle had remained horizontal, and, uniting to the under part of the obliquely placed inner portion, formed with it an acute angle.

Fractures of the clavicle are treated sometimes purposely by position alone, and at other times the bandages have so little influence on the position of the bone, that its adjustment is chiefly dependent on the recumbent position of the patient. The employment of bandages affords, however, the best prospect of a complete and regular union of the fracture, does not require confinement to bed, and is the best mode of treatment: when, however, the patient for other reasons is confined to bed, the knowledge of the fact that fractures of the clavicle often unite very well when the patient is confined to the back in bed, and no ban-

dages of any kind are employed, the arm being simply placed in a sling, will often save the patient some inconvenience.

When a flask with a moderate quantity of gunpowder is held over a flame, and a little dropped out of it, the flame often runs up the stream, and the flask blows up. The result of this accident is pretty uniform; the fingers are injured more or less; but the stress of the mischief comes on the thumb, which is partially torn off at the carpus. These thumbs look very likely to slough off; but the wound is large, there are plenty of vessels, no matter is pent up, and these cases generally do very well.

1. A boy, aged 15, was admitted, under Mr. Lawrence, with a large wound of the right hand from the explosion of gunpowder. The skin and muscles between the thumb and forefinger were torn, whilst the joint between the trapezium and first phalanx was laid open. Two bleeding arteries were tied. The thumb was so moveable that it could be laid backwards to a certain degree on the arm. Sutures and roller were applied, with water dressing. The parts all united well: the carpo-phalangeal joint remained stiff, whilst the other joints below were unaffected.

2. A boy, aged 14, was admitted under Mr. Lawrence with a somewhat similar accident, but less in degree, and only exposing the carpo-phalangeal joint of the thumb, with laceration of the fingers. In this case very severe inflammation ensued, which terminated in stiffness of the thumb and slight mortification of the fingers, but the hand remained ultimately good and useful.

When the dislocation of the thumb is complicated with fracture of one of the bones, the difficulty of reduction may be so great as not to be overcome.

A boy was admitted in 1842, with a dislocation of the ungual phalanx of the thumb on the back of the phalanx above it; the carpal phalanx of the thumb was also broke near its carpal extremity. Extension was made in the extended position of the thumb, as well as in the bent position, without reducing the dislocation; the extension appearing to be rendered useless by the yielding in the situation of the fracture. The thumb was left unreduced, and appeared in a few weeks in its new position to be better than no thumb at all; and, if one may guess in such mat-

ters, likely to gain a more useful and extended degree of motion subsequently.

Simple dislocation of the thumb arises in general from a fall, or some considerable force applied to the extremity of the thumb: perhaps one of the most common causes may be a fall, in which the end of the thumb is the part which first touches the ground, and which consequently receives the chief part of the weight of the body. As the force is so great, a severe degree of injury might justly be expected; and experience shews no very great difference between the frequency of compound and simple dislocations of the thumb.

In dislocation of the thumb, the distal phalanx is generally dislocated behind the proximal, and the injury is situated much more frequently between the middle and extreme, than between the carpal and middle phalanges. The distal extremity of the middle phalanx forms a round swelling on the palmar surface of the thumb, whilst the ungual phalanx is retracted considerably on the dorsal surface of the middle phalanx, and is rarely parallel to it, but inclined to it at a very obtuse angle.

The reduction of a dislocated thumb may be effected, in general, by applying a clove-hitch knot to the dislocated distal bone, and extending the part by it, whilst an assistant, by grasping the arm at the wrist, exerts firm counter-extension. After extension has been made thus for a considerable period, the part generally on a sudden assumes its natural position. This plan, however, has been known to fail in the most experienced hands, and at other times to succeed only after great and long extension.

Some years since, Mr. Wormald suggested the propriety of attempting the reduction of this dislocation by bending the elbow and wrist, as well as the metacarpus and joints of the thumb, to a considerable degree, instead of applying the force whilst the parts were extended. This plan has now been tried for some years at St. Bartholomew's Hospital, with the result that the reduction is thus made much more easily than in the extended position;—that cases irreducible in the extended position are sometimes thus reduced;—and that, in the very few cases which are irreducible on this plan, some distinct cause may be found to account for the difficulty. The most convenient plan for applying

extension in this manner, is to place the patient upon a stool, with his back to the surgeon; to bend the arm over the shoulder, and thus, bringing the hand bent behind the patient's neck, to apply extension there. Even this plan, however, fails at times.

There are, however, some cases of dislocation of the thumb which resist the employment of all means, and which appear to depend on the new relation which parts forming the joint assume to each other. The lateral ligaments have been supposed to account for the difficulty experienced in some cases.

In the two compound dislocations of the ungual phalanx of the thumb in St. Bartholomew's Hospital, during 1842 and 1843, related below, the displacement was so considerable that the lateral ligaments were completely torn through, the bare bone being visible in the situation of the natural attachment of the ligaments. Here the greatest difficulty existed in the reduction of the dislocated bones, which appeared to be torn quite free from the lateral ligaments.

In the summer of 1842, a man was admitted under the care of Mr. Stanley, with a compound dislocation of the right thumb, the lower extremity of the middle phalanx being protruded to a considerable extent through the skin, on its palmar surface, whilst the ungual phalanx was thrown backward. The lower extremity of the phalanx was quite bare, the tendon of the flexor longus not visible, and the lateral ligaments evidently torn through. The greatest difficulty was found in reducing the bone, but at last it snapped in quite suddenly, the cavity of the joint closed, and the man gradually recovered in such a manner as to indicate the probability of the flexor longus being entire. Here the bent position failed, and the thumb was reduced in the extended position.

In this case the tendon of the flexor longus was shewn to exist by the subsequent progress of the case; and, as it was not on the front or lateral parts of the phalanx which were visible, it could only be situated at the back of the middle phalanx, and consequently also between the two phalanges, as it descended to its attachment to the ungual phalanx, in which situation it would powerfully assist the extensor tendon in pulling the ungual phalanx up behind the middle phalanx, as well as be placed as an obstacle exactly in that line by which the ungual phalanx must travel to

gain its proper situation. The sudden yielding of the parts, taken together with the immediate closure of the joint in front, rendered it probable that the tendon had suddenly slipped round the side of the extremity of the phalanx, and in this manner ceased to be any obstacle to the reduction of the dislocated parts.

The peculiar features of this case tended to throw some light on the occasional difficulty which is found to exist in the reduction of this form of dislocation, and to suggest the idea of an important obstacle occasionally arising from the peculiar position of the flexor longus pollicis. In the preceding case the obstacle was overcome; but the following case, presenting exactly the same appearance, was accompanied with such complete immobility, as to be quite irreducible.

A man was admitted into St. Bartholomew's Hospital, in the summer of 1843, under the care of Mr. Stanley, with a compound dislocation of the right thumb; the lower end of the middle phalanx being thrown forwards through the skin on its palmar surface, whilst the ungual phalanx was thrown backwards. The tendon of the flexor longus pollicis was not visible, although its groove, and the articular end of the middle phalanx, were plainly seen, the end being protruded so far through the skin that the situation of the attachments of the lateral ligaments was visible, destitute, however, of all ligament. The bone was also slightly tilted to one side.

The thumb felt tolerably loose, but all efforts were ineffectual in reducing the dislocated bone, whether simple extension or lateral motion. Under these circumstances the part was ordered to be kept covered with a poultice, and left in its new situation.

Looking at the difficulty of reducing this case, on June 18th the following experiment was made on the dead body by Mr. Stanley. An incision was made across the distal joint of the thumb, resembling that occurring in compound dislocation. The sheath of the tendon and lateral ligaments were divided, whilst the tendon of the flexor longus was allowed to pass behind the middle phalanx, and consequently between the two bones at the joint, which was dislocated. Great difficulty was found now to exist in reducing the dislocation, which was found to increase in proportion as the sheath of the tendon was divided higher up, and the tendon

allowed to pass behind the phalanx higher up, and consequently more directly through the middle of the joint. When by lateral twisting the tendon could be brought round the extremity of the bone to its natural situation, the part was immediately reduced; so difficult, however, was reduction, that it was only by three persons trying with all their force, one after another, that the thumb of a dead man, artificially dislocated, could be reduced.

The experiment on the dead body thus appeared to present a difficulty similar to that which existed in the living patient, when the parts were artificially placed in the same position as that which appeared to be the case in the two dislocations. In short, the displacement of the tendon of the flexor longus pollicis, and its new position between the two articular surfaces of the dislocated bones, seemed to give rise to a difficulty, which might be more or less great in proportion as the tendon had slipped more or less completely behind the bone, and thus become situated more or less directly in the joint.

For these reasons extension was applied again, in the last case, on the third day after the accident, but ineffectually. Under these circumstances, the ungual phalanx was removed: the tendon of the flexor longus was apparently entire, but its exact relations could not be seen during the amputation. The stump healed well; there was some suppuration up the course of the flexor longus, which was opened in the lower part of the fore-arm, which somewhat prolonged the cure.

In the following case of injury of the elbow, the olecranon appeared to have been cut off, and the joint was exposed. The case, however, did quite well.

Caroline Wallace, æt. 8, June 8, 1842: admitted under Mr. Stanley. This injury happened from a fall upon the back part of the elbow against the edge of a broken plate, which made a transverse wound extending across the back of the joint, completely dividing the olecranon in the ordinary situation of its fracture. The arm was strictly confined upon a splint, with the elbow slightly bent. Inflammation of the elbow ensued, but this very soon subsided. The case then proceeded uninterruptedly to its cure. The external wound healed completely. The separated piece of the olecranon reunited. The motions of the joint were,

on the child leaving the Hospital, so rapidly returning, that there was every prospect of their being completely regained.

When the openings around a compound fracture of the elbow have healed up, the motions of the joint are frequently very much impaired, and accompanied with pain. It is remarkable, however, to what an extent joints under these circumstances recover subsequently, when attention is paid to the part. Thus an elbow joint which, at the end of six or eight weeks time from the receipt of the injury, had gained very little motion, and that accompanied with pain, in two years will sometimes recover the power of free flexion and extension, limited only at the extreme degrees of these motions—the patient, in short, gaining almost complete use of his arm—when at a previous period a doubt might have been entertained of any great use of the limb ever being obtained.

Amongst the accidental cases of great interest occurring in a large hospital, may be reckoned compound fractures of the fore-arm and leg; not those where, from the severity of the injury, amputation is immediately required, but those where the balance in favour of leaving or removing the limb is so accurately adjusted, that it is doubtful to which side the greatest weight inclines. In many cases there is a question of choice between the comparative usefulness of a stump and a more or less impaired limb; but this is far from being the general rule, and the decision often turns on the question of the patient surviving the natural consequences of the injury, or being in a condition to allow an operation at a future period, which is not performed at first.

In the period elapsing between the accident and the ultimate restoration to health, there are often days and weeks which are dearly bought, even with a limb. There are days at the early period when a pain in the back or in the jaw, or a rigor, are equivalent to almost certain death; there are often weeks when recovery is slow, or the patient's condition is but stationary; and even when all things go well, some persons do not bear confinement. These are the dangers of a doubtful question of amputation, and they concern a man's life—not his mere limb.

The cases of injury in which the propriety of amputation has been doubtful have varied very much in their result, but injuries

about the same part have had a nearly uniform result. Severe injuries of the leg have not terminated so well as severe injuries of the arm. In the arm, very large lacerated injuries have done well, but in the leg this has been rarely the case. The injuries with deep contusion and little laceration to the skin have been much more dangerous to life than the lacerated injuries with exposure.

In the injuries of the leg which have been left, and where mortification has ensued, amputation has sometimes been performed at the end of the case, to make a stump, but in the serious part of the case it has not been practicable. In the arm it has at times been performed when the mortification was spreading, but not always with success. A doubtful injury of the arm often gets well, but a doubtful injury of the leg very rarely. The crushing of any part of the carpus, the separation of the proximal ends of any of the metacarpal bones, or crushing of the coronoid process of the ulna, have appeared to be much more serious injuries than injuries to the olecranon. Compound fracture of the olecranon, exposing the elbow joint, has done well; but compound dislocation of the ankle has been generally a most serious injury, and sometimes fatal. No joint, however, suffers so much with impunity, at times, as that between the carpus and thumb. When this joint is freely exposed, and the muscles torn, so that the thumb lies back on the arm, it will sometimes unite and do well.

CHAPTER V.

INJURIES OF HEAD AND SPINE.

Abscess of brain after injury. Discharge of fluid from the ear after fracture or blows on the head. Indentation of the skull in children. Fracture of the base of the skull, with remarkable deficiency of symptoms. Slow inflammatory changes occurring in the skull of a child after fracture, resembling hydrocephalus. Fractured base and apoplectic effusion. Bleeding in injuries of the head. Dislocation of the vertebræ at the junction of the dorsal and lumbar portions. Reason of this part yielding. Freedom from paralysis in these cases.

Amongst the many changes in surgery, there are few greater than in the frequency of the use of the trephine. In the wards where Mr. Pott collected his experience, cases of matter under the bones of the skull, as indicated by cerebral symptoms, are now rarely met with, and the peculiar characters of the puffy tumor of the scalp are seldom seen. The following case is related as interesting in reference to these cases. It was accompanied by symptoms of a very decided kind, but dissection showed that removal of the bone would not have been sufficient; and even if the abscess under the dura mater had been evacuated, the fluid effused in the base of the skull would still have remained. But the abscess could not, in all probability, have been known of during life.

Julia Cane, æt. 36, admitted Oct. 19, 1840, under Mr. Lawrence. A portion of the scalp was turned off on the right side, equal to three inches square, on the left to two inches, whilst the bone was denuded considerably on the right side. Ten arteries in all were tied, the parts cleaned, and sutures applied in the evening, which were removed on the following morning. The case proceeded

well, and, on November 3d, the wound of the left side had healed, whilst large sloughs had come away on the right side.

Nov. 12th.—On the 10th she experienced two or three distinct shivering fits, with pain in the head and fever. The wound is granulating healthily, but exhibits a portion of dead white bone. The pain in the head is relieved much, and the fever removed by the application of a few leeches to the scalp, as well as by the employment of antimony.

25th.—The shivering fits have not distinctly recurred since the 12th; she has not, however, been so well since; slight pain in the head, increased at intervals, occurs occasionally with some general fever. This has been partially relieved by the occasional application of leeches, and small doses of effervescing medicine, with antimonial wine. Hydr. c. Cretâ has been also given, but has been omitted during the last one or two days, as her mouth was slightly sore, and she complained of extreme feebleness. The scalp is partially united on the right side, but puffy from a small quantity of watery pus collecting daily, whilst a considerable portion of dead bone may be felt with the probe under the partially adherent scalp. This afternoon, whilst walking to the closet, she seemed to fail on one side for the first time, and the left arm and leg were found to be partially useless; her mouth also appeared partially drawn to the right side. No loss of sensation is described, but as her mind does not appear so active as usual, her statement is not absolutely to be trusted.

Blister; 8 Leeches to the temples. To take Hyd. c. Cretâ, gr. ijss. every four hours.

26th.—Pain somewhat relieved by the leeches. Paralysis of left arm and leg complete, as well as of the left side of the face. The only marked change is, that she appears to be less rational and more dull.

To be cupped to eight ounces behind the ears. To omit the Hydr. c. Cretâ, and to take Calomel, two grains every four hours.

The cupping produced no marked change, except extreme feebleness of pulse and considerable vomiting.

Half past 10 P.M.—She has become suddenly quite insensible,

after severe shivering, accompanied with the most extreme feebleness of pulse. Her pulse is now, however, more perceptible, but rapid. Pupils rather dilated, quite insensible to light. The only motion is slow and difficult respiration, with stertor. She died calmly at 11 P.M.

Head examined on the following day. Scalp natural on the left side. On the right side, a portion of the parietal bone was dead, and covered by a small quantity of watery pus. On the internal surface a smaller portion of dead bone was seen, but not marked by a depression as on the outside, only by a defined line. A portion of dura mater, of a round form, half an inch in diameter, surrounded by a defined line, and exactly under this portion of bone, was found covered with a layer of a whitish-coloured creamy fluid: this portion of dura mater was firmly adherent to the arachnoid and to the surface of the brain, and easily separable from the surrounding dura mater at its circumference. The brain itself was much flattened, but equally so on the two sides; the middle lobe, exactly under the injured portion of bone, contained an abscess with irregular greenish-coloured walls, separated from the ventricle and membranes by a thin layer of cerebral substance. The abscess contained two ounces of a greenish fœtid pus. The base of the skull contained two ounces of a semi-opaque fluid; the brain was otherwise healthy.

Discharge of a watery fluid from the ear, in considerable quantity, is seen as an occasional accompaniment of injury to the head. In some cases the patients recover, and, leaving the hospital, are not seen again; in other cases the patient dies, and, on examination, a fracture of the skull may be found. The treatment of the case is not altered by the flow of fluid, but it is of importance to know the real value of this symptom.

In the three following cases the parts were examined after death.

James Dukes, æt. 16, admitted April 21st, 1842, under Mr. Stanley, with a large head, bleeding from the left ear, partially sensible, and having vomited just before admission. Pupils sensible; neither dilated nor contracted. He has fallen eight feet on his head, just before admission, and is now apparently recovering from stunning. The fluid escaping from the left ear is

watery, and of a very thin consistence, being only stained with blood.

2d day.—Lies dull and stupid; hardly sleeps even at night; vomits very frequently; but is sensible when spoken to, and answers his name. The fluid from the ear continues to flow, and has soaked the chief part of his shirt. When he lies on the right side, the fluid fills the left ear.

The boy continued in this condition, being dull and heavy, sleeping very little at night, vomiting, and taking very little food, until the sixth day, when he gradually became insensible, breathed heavily, lay with his head flexed backwards, and died about 5 P.M., the symptoms having become gradually worse up to the fifth day, but not being attended with such acuteness or fever as to afford any well-marked indication for treatment. The flow of fluid continued during the two first days; it then ceased, but recurred again before death: the consistence of it was very thin, the chief part evidently consisting of blood.

Some effusion of blood was found on the skull, over the left half of the frontal bone. A fracture, commencing at the frontal centre, passed across the left half of the frontal bone, the anterior inferior angle of the parietal bone, and the petrous portion of the temporal bone, to the base of the skull. A considerable effusion of blood was found in the anterior fossa of the skull, on the left side, external to the dura mater, and a smaller one on the right half of the temporal bone, also external to the dura mater. The dura mater was torn right through in the line of fracture, just over the superior semicircular canal; so that the cavity of the arachnoid communicated with the fracture. The whole cavity of the arachnoid and substance of the pia mater, extending between the cerebral convolutions, was full of greenish recent lymph. The cortical substance of the brain was more full of blood than natural; the ventricles rather large, and full of clear fluid. The outer part of the right lobe exhibited a rent about an inch and a half long, not extending deeper than the convolutions; on the left side, over the hole in the dura mater, was a small softened spot of brain, without much blood, which communicated with the arachnoid cavity, but which only included the cortical substance.

William Basford, æt. 14, admitted under Mr. Lawrence, partially insensible, but noticing objects round him, and conscious of what was said to him when roused. From the meatus of the right ear a watery fluid, mixed with a considerable quantity of blood, flowed on the pillow during the hour after admission. He had fallen down seven steps, on the upper part and right side of his head, a short time before admission: this fall appears to have produced complete insensibility at the time.

2d day, 1 P.M.—The boy is now become quite sensible, as regards consciousness of persons and sounds near him, answering questions clearly and well. When he first woke, the objects in the ward were dim and cloudy, but gradually objects have become as clear as usual. From the right ear a clear watery fluid, unmixed with blood, now flows freely, so that the pillow is quite wet. This fluid comes quite deep from the meatus.

3d day.—Slept very little in the night, and complained of the light hurting him on waking. He was restless and very sick at times during the day. About 4 o'clock he became gradually insensible in about an hour, the discharge having ceased just about that time. In the night of the 3d, and 4th morning, he had a kind of convulsion, and died about 3 A.M. on the 4th day.

The brain was not torn or marked with blood. The arachnoid was rather dry. The petrous portion of the temporal bone was broken in its long axis, right into the canals and tympanum; the membrana tympani was also considerably torn. It was not certain whether the dura mater was torn over the fracture, which extended nearly along the line of the superior petrosal sinus, with a lateral part extending to the internal meatus.

Sarah Newland, æt. 5, admitted June 18th, 1842, 2 P.M. under Mr. Skey. This child was brought in quite senseless and motionless, with a slight wound of the scalp on the right side and upper part of the head: in this place the bone could be felt broken, and not depressed; there was some bleeding from the right ear. The scalp was divided, and some loose, broken portions of bone removed by Mr. Skey with the forceps: an extensive fracture was found at the same time extending towards the base. The child's condition was not altered by the removal of the bone.

The child had fallen two stories on her head into the road, injuring at the same time the right hand. She was picked up senseless, and brought to the hospital directly.

4th day.—The child lies on its back, unable to recognise any persons. She can move both her arms and legs. Breathing hurried, and pulse very frequent, small, and quite hard. Pupils contracted, not very sensible of light. She has taken no nourishment since admission: the bowels are quite confined. A bloody and watery fluid has continued to flow from the bottom of the right ear up to the present time in small quantities, and collects in the concha of the ear, when the child lies on the left side. The urine is drawn off by the catheter. The child sank and died about 4 A. M. on the fifth day. A considerable quantity of effused blood existed on the outer part of the frontal and occipital bones. On the right side a fracture passed from the wound through the petrous portion of the right temporal bone, where it divided into two other fractures; one of these extended to the sella turcica, the other to the foramen occipitale. On the parietal and occipital bones, to the left side of the occipital foramen, a small quantity of pus was found between the dura mater and bone near the injury. The dura mater was entire and healthy every where. An ecchymosis of considerable extent, but very thin, existed over the posterior upper part of the right cerebral hemisphere. The brain was healthy, except a very small slight softening on one spot of the base of the right middle lobe; numerous small spots, of the size of a mustard seed, of effused blood, were found in the substance of the brain, crura cerebri, and walls of the ventricles.

In thirteen cases of injury to the head blood or fluid flowed from the ear. Of these thirteen, seven left the hospital apparently well, while six died. In all these six the petrous bone was broken, and where the side is mentioned the bleeding and fractured sides corresponded. The cases are here enumerated.

FATAL RESULT.	INJURY AND FLUID.	GOOD RESULT.
	1. Left ear. Blood.	1. Recovered.
	2. Do. Do.	2. Do.
	3. One ear. Do.	3. Do.
	4. Left do. Do.	4. Do.
5. Died. Fractured base running to petrous bone.	5. One do. Do.	
	6. Right do. Do.	6. Do.
7. Died. Both petrous bones broken.	7. Both ears. Do.	
	8. — Fluid.	8. Do.
	9. — Do.	9. Do.
10. Died. Fractured base and tympanum.	10. One ear. Do.	
11. Died. Fractured base and left petrous bone.	11. Left do. Do.	
12. Died. Petrous bone broken.	12. Right do. Do.	
13. Died. Right petrous bone broken.	13. Do. Do.	

Seven of these patients recovered; two having suffered from watery discharge from the ear, and five from bleeding.

In the fatal cases the petrous bone was broken, and when the side is noted, the fracture was on the same side as the discharge of blood or fluid. This fracture causes the ear to communicate with the skull, and, if the dura mater is lacerated, with the cavity of the arachnoid, and affords a possible source of fluid in addition to the ear itself. If the skull is not broken, and the fluid necessarily flows from the ear, it is very difficult to conjecture what

vessels or cavity of the tympanum could pour out either blood or fluid in any quantity.

The two following cases are well-marked instances of that form of depression of the skull which occurs in children, and which appears to be a simple indentation of the bone, unaccompanied by any fracture. In one case there were no cerebral symptoms, whilst in the other they were well marked.

A girl, eleven months old, was admitted, under Mr. Lawrence, Oct. 18, 1840, having fallen from a person's arms on the back of her head three-quarters of an hour previously; the child immediately became pale, and vomited. On admission a portion of the occipital bone on the left side was depressed about a quarter of an inch for the space of about a half-crown. The child moved its limbs freely, sucked, and cried. On the same evening, the depression was less apparent, and on the evening of the second day was only perceptible on close examination. She left the hospital apparently well. Some months previously a part of the frontal bone had been depressed in a similar manner.

A child, aged one year, was admitted, under Mr. Lawrence, June 1842. Quite sensible; sucking when put to the breast; crying when moved; not sick, and apparently well, but labouring under a depression of the upper anterior and lateral part of the right parietal bone. This was considerably depressed, and admitted of two fingers lying in it. The accident had happened about half an hour previously.

The mother took the child home, and brought it to be seen on the second day; the child had continued well, and the depression was much less apparent.

The number of cases of fractured base of the skull admitted is very considerable, and forms a large portion of the severe cases of injury of the head. Some are brought in dead, but this is rare; and even the very worst cases of fractured base generally live for a few hours. One case lived for fifty-six days, and patients leave from time to time, and are never heard of again, in whom the only objection to fracture of the skull is, that they are apparently well.

The existence of a fractured base is hardly ever marked by any one individual symptom; but this does sometimes happen. A man

had suffered injury, and had the general symptoms of severe injury to the head, but at the same time he had paralysis of one portio dura. Dissection shewed, what was probable, that the fractured base had included this nerve, and torn it across.

It is remarkable how rarely the distinction between concussion and compression is required in relation to any operative proceeding; but the distinction of symptoms arising from a slight injury which will yield, and of those which are accompanied with injury to the brain or skull of an incurable nature, has to be made in almost every case.

When the injury consisted in fracture alone, and was accompanied with only slight effusion of blood, or with blood not in such quantity as to produce any marked pressure, or with blood effused in considerable quantity, but having an external outlet through the fracture or the ears, in these cases the patients have been very insensible, and had no convulsions, and generally died gradually in from twelve to thirty-six hours.

Sometimes, with very severe fracture, and nothing else, the patient has failed rapidly in six hours, like a severe case of concussion.

Pure symptoms of severe concussion, though a source of anxiety as long as they last, may be a much more favourable sign than their absence. Although severe fractures of the skull resemble cases of concussion so closely, they are generally accompanied with some peculiarity dependent either on the effusion of blood or the injury to bone; and even when such is not the case the mere lapse of hour after hour, without any unfavourable circumstance occurring, though no improvement takes place, often marks the case of mere concussion. Persons sometimes suffer the most severe falls, and escape; but in many cases there is no more unfavourable peculiarity, and no more certain sign of an injury, which will terminate fatally, than a rapid recovery in a few minutes from a severe injury to the head.

The statement that "the person fell down and was quite insensible for a minute or two, and then got quite well, and was able to walk," in a case of an injury likely to be followed by a fractured base, is a most suspicious thing, and in patients so situated a lacerated brain or a fractured base are not at all uncommon.

An old man was brought to the hospital with a cut head, and quite sensible: the person accompanying him stated that he was knocked down by a cab, remained insensible for a short time, and at last got up only a little giddy. In three hours he had a violent convulsion, and he died on the eighth day with a fractured base and effused blood on the brain.

A man was thrown from his horse, drunk, and was stunned. He then got up, walked a hundred yards, and appeared quite rational to his friends. He went to bed, and slept well, but was found on the floor in the morning, and was said to have been convulsed. He died on the second day. There was a fractured base and a lacerated brain.

One evening a young man applied with a cut head, having fallen off a ladder about half an hour previously, and lost his senses for a short time. He appeared tolerably well, and was chiefly admitted as a measure of precaution. In less than a week he was dead, with a recent fracture across the base of his skull. He had laboured under chronic hydrocephalus when a child, and appeared to have fallen down in a fit.

An old woman was knocked down by a cab, and cut her head. She was not very dull, and after being dressed the policeman took her home. Her home could not be well made out; so she was admitted. The same evening she had a fit, became insensible, and died in the night. There was a large laceration of the base of the brain.*

The following case of fracture of the skull occurred in a child, and was remarkable for the slow inflammatory changes, which, in their symptoms and result, bore some resemblance to hydrocephalus.

A child aged nine years, was admitted February 15, 1840, under Mr. Stanley, of tolerably healthy appearance, labouring under the ordinary symptoms of severe concussion, after a fall down stairs, but without any direct symptoms indicating further injury to the brain or skull, except bleeding from one ear. From these he recovered in one or two days; his condition was, however, not that indicating complete recovery, and therefore a few

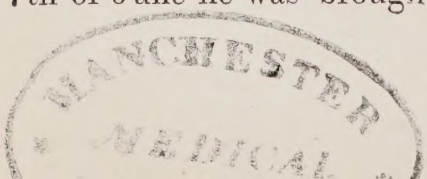
* This class of cases is alluded to by Dr. Abercrombie, and resembles very closely the cases "not primarily apoplectic," described in his work on Diseases of the Brain and Spinal Cord. 3d edition, 1834, p. 217.

leeches and blisters to the neck were applied. About the 25th he became subject to general fever, restlessness, and general convulsions, accompanied with crying and calling out at night: for this he was treated by leeches to the head, blisters to the neck, and calomel in small doses to salivation. Under this treatment the fever abated; he, however, became affected with strabismus, more or less insensibility, and complete inability to move freely in bed, the motions of his body and limbs being slow and few. This was his condition on the 26th March, when he was ordered nourishing diet; a seton was also placed in the neck, and small doses of mercury were employed, the evacuations being clay-coloured. This treatment, however, produced no change; the skin on the extremities and joints sloughed, he became more feeble, and died quietly, May 11 (86th day).

The external surface of the skull presented nothing unusual: the skull in the right temporal fossa, from the squamo-parietal suture to the petrous portion, through the middle fossa of the skull, was broken, and quite separated, presenting not the least traces of union: the edges of the bone were bloody, and not rounded off in the least. In the right middle fossa of the skull, a small quantity of yellowish soft substance was observable lying between the bone and dura mater. The upper surface of the brain was somewhat flattened and compressed; the anterior part of the right lobe, and whole lower part of the right middle lobe, were white, free from vessels, and of an unusually soft consistence, breaking down and almost "flowing" under the finger. The ventricles contained about six ounces of a clear fluid; the arachnoid membrane at the base of the brain, more especially along the median line, was quite opaque, and very much thickened, more especially about the optic and third nerves. The clavicle was firmly united by callus, surrounding the broken extremities of the bones, and completely fixing them.

The following case is related on account of the existence of a recent apoplectic effusion in combination with a fracture of the bone. It was not clear how far the second effusion was dependent on the injury or not.

A man, about forty, had hemiplegia of the right side, and getting partially well, went home, April 7. On the following 7th of June he was brought in quite insensible, and died in two


MANCHESTER MEDICAL

days, having been thrown from a cart, the horse of which was running away. Dissection shewed a fracture of the base, through the temporal bones, with the effusion of two ounces of blood. In the left optic thalamus was an old apoplectic cyst, of the capacity of six drachms, with soft yellow sides. In the right optic thalamus was a drachm of recently effused coagulated blood, not communicating with the ventricle.

The three following cases of delirium apparently produced by bleeding after injuries of the head, occurred at St. Bartholomew's Hospital, and formed part of a clinical lecture on the treatment of injuries of the head, delivered by Mr. Lawrence, May 17, 1844.

1. A man, aged 32, was thrown on his head, and picked up insensible; he was immediately bled. Soon afterwards he became extremely delirious, and was brought to the hospital, where he was so violent as to require being fastened down, and in one of his struggles the tape slipped from his arm, causing him to lose more blood. Pulse soft: 76. Some little bleeding from one ear. Half a grain of Acet. Morphiæ was administered, which gave him some sleep. Half a grain of Acet. Morphiæ was again given after a few hours. He slept part of the night, and next day was well. He went out in a few days.

2. A man, aged 35, fell from an omnibus, and was immediately bled to 16 ounces. He became delirious, with a soft pulse at 120. Half a grain of Acet. Morphiæ was administered, and repeated again in four hours. This made him quite quiet, and in a few days he was tolerably well.

3. A bricklayer, 36 years of age, fell off a scaffold, and was found insensible. He was bled, and soon after cupped. Next day he was rambling and violent. For four or five weeks this man lay in bed, occasionally so violent as to require restraint, rambling and talking in an incoherent manner. At last he came gradually round in about six weeks from the injury; appearing, however, to be somewhat dull in his faculties, and slow in his speech. Wine, opium, low diet, good diet, mercury, and blisters, were all tried, but without any very marked benefit; the man appearing to get well of himself.

The upper lumbar and last dorsal vertebræ are liable to simple

dislocation, or to dislocation accompanied with fracture of a slight nature. This injury occurs from violent falls backwards or forwards, by which the trunk is either forcibly bent forwards, or the loins carried forwards, whilst the chest and upper extremities are carried backwards. The symptoms are on the whole mild, considering the part injured, as the loss of motion and sensation, which are occasionally present, generally rapidly subside, leaving the sufferer able to follow his employment with some deformity and considerable weakness of the back.

The symptoms accompanying this injury are dependent on the displacement of one vertebra from another, by which an angle is formed in the back at the injured part, from the projection of the spines of the vertebræ against the skin, with a depression between them. This depression is sometimes two inches in length, and depends on the degree of displacement of the vertebra, the spine of which may be so prominent as to make the skin sore, by its being carried backwards, and turned rather obliquely upwards. When the displacement is considerable the whole body is inclined forwards above the injured part, but where the displacement is not very considerable the body only is inclined unnaturally forwards in a slight degree, and the patient maintains his equilibrium by throwing his shoulders and neck back to counterbalance the prominence of the abdomen. This prominence has been generally found to subside more or less, and even sometimes, but rarely, to disappear at a distant period of time, the functions of the part being at the same time almost completely restored, and the patient able to return again to his usual occupation.

It is remarkable, in looking over the recorded cases of displacement of the spine happening from falling forwards, and unattended with any apparent fracture or severe paralysis, that the junction of the dorsal and lumbar regions has been particularly affected. It is clear that the junction of the first lumbar vertebra with the last dorsal above, and with the second lumbar below, allows of this occurrence without any very great difficulty; but it still remains to be shewn how this part is placed in such a position as to render the displacement probable. This accident happens sometimes from the body being bent violently forwards, so that the

patient seems to be doubled up, in which position the anterior surfaces of the vertebræ must form a concave, and their spines a convex line; this convexity being likely to give way, if any where, at the place where the greatest extension is made. From common observation, as well as from experiments which have been made, it appears that the principal points of flexion of the back are three; the first between the third and seventh cervical, the second between the eleventh dorsal and second lumbar, and the third between the fourth lumbar and upper part of the sacrum; but of these three places, the two lumbar, from the depth of the intervertebral substance, and the form of their articular surfaces, possess the greatest share of motion.

The part between the eleventh dorsal and second lumbar vertebra thus appears to be one of the two points at which the motion of flexion is chiefly performed, in addition to being the part at which antero-posterior displacement is, to a certain degree, allowed by the peculiar form of the bones. If we now call to mind that this point is situated at the junction of the almost solid mass of the chest with the more yielding pillar of the lumbar vertebræ, it is not difficult to conceive how this should be the especial part to yield, when violent flexion is involuntarily forced on the spinal column. In violent blows, or falls upon the back, the displacement occurs sometimes at the same spot: this must arise from the body being pushed violently backwards or forwards, and the one vertebra gliding from its articulation with the other.

So few opportunities have occurred of examining the injured parts in these cases, that they must be arranged according to their mode of occurrence, or the symptoms which they presented. When the displacement has occurred from a violent blow or fall, the nervous symptoms have generally been more severe than when the injury has arisen from a violent flexion of the back.

William Baldwin, æt. 23, admitted Sept. 7, 1843, under the care of Mr. Stanley, having hurt his back, by a fall of the height of twenty-four feet, in which he was bent up very much, and strained. Some blood was effused on the lumbar part of the spinal column, as well as about the right foot and ankle. No fracture of any bone was discovered, neither were there any symptoms of injury to the spinal cord. About one week after admission, when

the effused blood had been absorbed, he still complained of pain in the lumbar region. His back was now accurately examined, when the spines of the twelfth dorsal, and first lumbar vertebra, were found to project considerably, forming in fact a considerable angle, with a depression between them, into which the finger could be pressed. The curve was so great and sudden as to resemble much that resulting from organic disease of the spine. His os calcis was now found upon examination to be fractured. During about the fourth and fifth day from admission, this man found some difficulty in emptying his bladder, the urine of which, when drawn off, was found to be natural in appearance, and acid.

Nov. 22.—The os calcis united firmly, and the man has walked about the ward for some time.

The projection of the spines of the vertebræ is still the same in all respects. The man complains occasionally of difficulty of passing his urine, and of weakness in the back, and lies down for a considerable part of the day on account of this, as well as the pain in the back and left leg. When walking he bends forwards considerably, and shakes on his legs.

As regards his previous history, he states that his back was previously quite straight, and that his health has been sufficiently good to enable him to work as a sawyer. There has been occasionally some pain in his back now and then, but nothing of a severe nature.

Three cases very similar to this are recorded.

In the following case this accident happened from a fall backwards, but was so similar to the cases of falling forwards in a bent position, that it may justly be placed with them.

A man,* aged 32, fell on a heap of rubbish, on his posteriors, and hurt his back. On examination, it was obvious that the spine formed an acute projection at the junction of the dorsal and lumbar portion, and that at the summit of this projection there was a space of nearly two fingers' breadth between the spinous processes. He complained of great pain, and was unable to move his legs, or expel his urine. On the second day he began to move his left leg, and had his bowels open. On the third day

* Syme: Edinburgh Med. and Surg. Journal, vol. xxxvii. p. 335.

he passed his urine without the use of the catheter. On the fifth day he moved both his legs. On the fortieth day he was dismissed, being able to walk with a stick, but somewhat feeble. The spine had become straighter, but still retained its convex form and separation between the spinous processes.

In this the symptoms were more severe than in the following case, which presented many similar features, but less severe symptoms. The injury arose from a fall, and was at exactly the same spot.

A man,* aged 32, fell thirty feet, from a scaffold, and was insensible for a short time. The body was found to be much bent, with an angular projection from displacement of the first lumbar and last dorsal vertebræ. There was considerable tumefaction over the bones, with a depression to the extent of about an inch between the most projecting spinous processes, whilst the transverse processes stood out so much, that they pressed against the skin. There was no diminution of sensation, or motor power, in the lower limbs, or any other part.

He left the hospital about five weeks after admission, having remained free from any symptoms of injury to the spinal marrow. At the end of seven weeks the man remained weak in the spine, but able to raise himself into the erect position for a short time; he now supported his chest on the edge of a table, when sitting down, and by resting his hands on his thighs when walking. At the end of two years his back was still weak, but flexible at the part injured, whilst the bones projected considerably against the skin. He was able to walk between two and three miles daily to his work, as a bricklayer, and return in the evening: this he had done during a year and a half.

A very similar case is also recorded,† in which, from a fall on the back, the lower part of the body was carried forwards, whilst the upper part was carried somewhat backwards; so that at the eleventh dorsal vertebra the spine projected, whilst between the spinous process of that bone, and the spinous process of the last

* Alex. Shaw: Medical Gazette, vol. xvii. p. 937.

† Case of Dislocation and Fracture of the Eleventh and Twelfth Dorsal Vertebræ, by R. A. Stafford: Med. Gazette, vol. xvii. p. 873.

dorsal, there was a chasm into which the three first fingers could be placed with ease, being in measurement full two inches in length. No paralysis of motion or sensation were present in this case; and at the end of three months the chasm between the eleventh and twelfth dorsal vertebræ gradually had lessened, with subsidence of the pain, leaving some deformity and weakness of the back.

The similarity of these cases, in the situation of the injury, the mode of occurrence of the accident, and the peculiar features of the cases, is most remarkable. In the last case the injury was apparently one vertebra higher than in the rest.

The following two preparations illustrate these cases.

Sir Charles Bell* has given a drawing of dislocation of the last dorsal from the first lumbar vertebra, which occurred in a child, from the wheel of a heavy coach going over its back. The child lived thirteen months, and then died of croup. In this instance the last dorsal and first lumbar vertebræ are completely dislocated from each other, both in the antero-posterior and lateral directions, with a very slight fracture of the lumbar vertebræ. In addition to this injury, the spinal marrow was completely torn across.

In the Museum of St. Bartholomew's Hospital is a specimen† of dislocation of the last dorsal vertebra forwards, with fracture of a small portion of the upper surface of the first lumbar vertebra, the articular processes remaining, however, entire. The fractured portion has united firmly, with great deposition of bone round the part, fixing the dislocated vertebra in its unnatural position.

There are some points of especial interest in these cases, which are,—the reason of displacement at this particular part, and the cause of the slight symptoms observed to succeed to it.

The examination of the bones of the spine, and of the motions of the trunk, explains the facility with which the bones may be separated at this part, whilst the form of the spinal cord and nerves at this part are such as to render pressure on them less dangerous and forcible.

If we examine the vertebræ of the lower part of the dorsal and

* Obs. on Injuries of Spine and Thigh Bone. 4to. 1824, pp. 79 and 25.

† Injuries of Bones and Joints, H. 94.

upper part of the lumbar regions, it is plain, in many cases, how much more easily a displacement of a vertebra backwards or forwards might here occur, than in the other parts of the spine. The articular processes of the cervical and dorsal vertebræ, by their situation alternately behind and before each other, throw a great impediment in the way of any displacement in these regions; whilst an equal obstacle to displacement exists in the loins, by the articular processes being directed alternately obliquely outwards and inwards, as well as from the surfaces being convex and concave, and thus locking into each other.

The superior articular processes of the twelfth dorsal vertebra look backwards with some inclination upwards, and the inferior articular processes of the second lumbar vertebra look obliquely outwards and forwards; the former retaining the character of the dorsal, and the latter assuming the peculiar form of the lumbar articular processes. The intervening joints, namely, the joints of the first lumbar vertebra with the lower processes of the last dorsal above, and with the upper processes of the second lumbar vertebra below, are almost entirely destitute of any antero-posterior relation to each other, but are united laterally, so that the superior processes look nearly directly inwards towards each other, and the inferior processes almost directly outwards; preventing thus most forcibly any lateral displacement, but being as much exposed to displacement in the backwards or forwards direction, as the cervical vertebræ are defended from it.

The limbs are not always described as paralysed in the recorded cases of this displacement; a circumstance of great importance, and explicable by the peculiar nature of the displacement, and the region of the spinal column in which the accident occurs. Let us examine this point also.

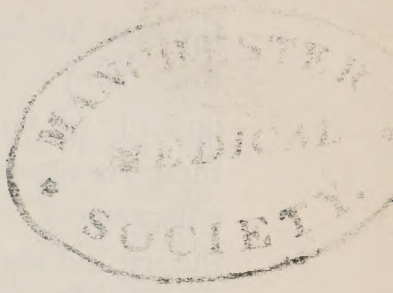
In the upper part of the lumbar region the dura mater forms a large wide sac for the spinal cord, which ceasing about the second lumbar vertebra, by its division into the bunch of nerves forms the cauda equina, and is thus, to a certain degree, less liable to pressure at this part.

The origins of the five lumbar and five sacral nerves from the spinal cord are situated between a line corresponding above to the spine of the eleventh dorsal, and a line corresponding below to the

first lumbar*. Pressure on this part would therefore act rather on the bunch of nerves than on the cord, and even if accompanied with paralysis, would be a far less serious evil, and less likely to be complete, than if exercised on the cord itself.

The nerves might thus escape pressure in the canal; they would also, in all probability, escape pressure at the intervertebral foramina, which are very large in the loins, being half an inch from before backwards, and which, by the oblique position of the vertebræ on each other, are in fact rendered much larger than when the bones are placed vertically above each other. It is deserving of especial notice, that in the case already described, as well as in those quoted, the depression between the prominent spines shewed that the bones were possibly placed obliquely on each other, and thus in that position which would be most likely to be accompanied with enlargement of the intervertebral foramina.

* Jadelot, in Tr. d'Anatomie Chirurg. et de Chir. Expériment, par F. L. Malgaigne, tome 2de, p. 33, 1838.



CHAPTER VI.

BURSAL TUMORS.

Treatment by applications, and incisions, and removal. Suppuration at times only slightly painful. Bursæ about hand and wrist. Case of large bursa of wrist cured by opening. Bursa under semi-membranosus muscle, with dissection of a case.

Bursal tumors situated over the patella and olecranon are treated successfully in various ways. If the swelling is tolerably recent, the parts thin, and the enlargement chiefly dependent on the quantity of contained fluid, the repeated application of blisters, or the application of the tincture of iodine, are the best. When, however, the parts are thickened, or the enlargement of some standing, these means are slow and very uncertain; the relief produced is indeed considerable, but the part again becomes painful on slight pressure. The best plan, however, seems to be, to pass a thread through the bursa, and leave it in. On the following day the bursa inflames and becomes painful; the thread may now be withdrawn, and through the opening left by it a puriform secretion is gradually discharged, and the bursa becomes no longer prominent.

These various plans of applying blisters, or the tincture of iodine, introducing a thread, or evacuating the fluid by puncture, are applicable where the part is enlarged and painful, the fluid being the ordinary secretion of the membrane lining the cyst, and not puriform in any way. Where, however, from the pain and signs of inflammation round the bursa, suppuration may be supposed to have occurred, a free incision gives more relief than any other means. Whatever accidents occasionally happen from the

opening of bursæ containing a serous fluid, such accidents have not occurred where pus has formed. Under such circumstances the part may be considered and treated as a simple abscess. When the skin has become much thickened over the patella, it is sometimes hard to detect the fluctuation in the bursa, especially if the quantity of fluid be very small. Occasionally, the bursa, under these circumstances, without any very acute symptoms, or distinct enlargement, suppurates; and, on an incision being made into it, the natural secretion of the cavity is found mixed with a small quantity of curdy matter. The evacuation of this puriform serum gives great relief, and the cases do well.

In some cases the inflammation of the structures surrounding the suppurated bursa is very considerable; the integuments on the lower part of the thigh becoming red and œdematous, whilst the bursa is acutely painful, much swelled, and, on incision, is found to be filled with a great quantity of thick yellow matter. These cases are accompanied with a deal of suffering, and are relieved by nothing but an incision, after which they get rapidly well.

From those cases which have occurred, the following plan has seemed the best to adopt in cases of enlargement of the subcutaneous bursæ. When matter has formed in them, the only means is the evacuation of the fluid by a free opening; this is unattended with danger, and followed by a rapid and complete cure. When, however, the bursa is recent, the skin thin, and the fluid probably a mere increase of the natural secretion of the cavity, the employment of blisters, or the external application of the tincture of iodine, is the best means of gradually lessening the swelling; but it will probably return. For a complete cure, or in those cases where the swelling does not yield to the application of blisters, or to the external application of iodine, more especially if the swelling be not large, the best plan of treatment is to introduce a fine thread through the swelling, and use it as a seton. On the second day this thread generally causes considerable pain, and requires withdrawal. A small quantity of puriform fluid passes for a few days through the opening, after which the swelling gets gradually less, and contracting, is completely cured. Very frequently the bursa suppurates so freely as to require a free opening, the hole for the thread having closed: although this is an extra source of

pain, yet the cure is more complete, and quite compensates for this accident.

Removal of bursæ simply for their inconvenience is a serious matter.

In the summer of 1843, a woman was admitted under Mr. Lawrence, with a bursa of many years' standing, on the patella, disabling her from following her employment. This bursa was round, with very thick walls, with a smooth internal lining, and its cavity contained a great quantity of small round bodies mixed with a very small quantity of fluid. The parts around inflamed, abscesses formed in the thigh, and the woman got into so low a condition as to be in danger, but recovered ultimately.

When the secretion is more or less mixed with pus, the pain is generally great, and the relief from any application none, or very slight. Occasionally, however, patients complain of very little pain, and the disease is of so mild a nature that it might be supposed to be a mere increased secretion of serous fluid; yet, even with this want of any urgent symptoms, the bursa has been seen to give way, and discharge puriform contents.

The bursal enlargement on the patella generally assumes the simple round form, but occasionally presents itself as an irregular oval tumor, or as a swelling marked by contractions in one or two places; these contractions being generally dependent on the division of the internal cavity of the bursa by partitions proceeding from the walls of the bursa. In the dissection of the knee of a sailor, who had been a sea-cook, the bursa on the patella was found enlarged to much beyond its natural dimensions, and divided into four or even more cavities communicating with each other. It can be also easily conceived, that the enlarged bursa might be pressed on by the surrounding fibrous structures, and thus be of different capacity in different parts.

Enlargement, with the collection of fluid in the sheaths of the flexor tendons of the fingers, forms occasionally a serious disease, from its extent, impairment of the functions of the part, and difficulty of cure. This swelling extends occasionally from the extreme ends of the metacarpal bones over the palm, and under the annular ligament to some distance above it; including, in fact, the entire course of the synovial sheaths of the flexor tendons.

A girl was admitted in 1838, under Mr. Stanley, labouring under this affection to such an extent, that the swelling formed a large tumor in the palm of the hand and forearm. A free incision made into it, gave exit to a quantity of fluid, mixed with hard bodies like melon seeds. The parts were much inflamed, but ultimately got quite well, with removal of the enlarged bursa, and some impairment of motion from the thickening of the part, which, however, in about two years, subsided so completely, as to allow the free and almost perfect motion of the hand and wrist. In another case, however, where openings had been made before admission, amputation of the hand was at last required.

This form of affection of the synovial sheaths of the tendons about the wrists becomes apparent at its early stage both in the palm of the hand and above the annular ligament at the same time, by a slight degree of fulness in both situations. The situation in which the palmar affection is first apparent is over the tendon of the index finger.

This affection is generally met with in the sheaths of the flexor tendons; it, however, is presented to us sometimes in the extensor tendons also. In the Museum of St. Bartholomew's Hospital is a preparation shewing enlargement of the sheaths of the extensor tendons, with the formation of numerous small bodies in them; the tendons and sheaths are also somewhat thickened. There is also a preparation of the same kind from the bursa situated over the tendons attached to the great tuberosity of the humerus, exhibiting the formation of numerous small bodies there also.

Small bursæ are very often situated in the neighbourhood of the tendons on the back and front of the radius, where they grow to the size of a large nut; these bursæ generally burst on firm pressure, and are thus very frequently got rid of entirely; they are, however, very liable to recur on any great use being made of the part.

These bursæ generally contain a thin watery fluid; they are, however, sometimes filled with a white cheesy substance, which may be pressed out from an opening made into them, after which the parts inflame slightly, and suppurate, but ultimately heal well.

It is not uncommon to find in these bursal tumors small white smooth substances, resembling melon seeds; these have been found both in the swellings around the tendons, and in the natural synovial bursæ, as that on the patella. When closely examined, they appear to be of the size of a large melon seed, quite white, firm in substance, and contain a small cavity: they are generally mixed with a more or less considerable quantity of serum, of rather an opaque colour, and differ but little from each other in size. The quantity of fluid existing with these growths is generally greater in the synovial sheaths of tendons than in the synovial bursæ, so that the bursa on the patella is sometimes found to be closely filled with them, with hardly any accompanying fluid. The lining membrane of the bursæ containing these growths is generally opaque, and considerably thickened; so much so, indeed, that its continuation over the tendons is quite white and opaque, and the bright shining appearance of the tendons quite wanting.

There is a peculiar form of tumor connected with the sheaths of the tendons about the knee-joint. These tumors are elastic, and become prominent on extension of the knee-joint, but recede more and more from the feel as the joint is flexed, until the swelling at last disappears on complete or considerable flexure of the knee. These swellings are in general about the size of a fives-ball, have a more or less distinct fluctuation, and are situated on the inner side of the popliteal space. They have occurred frequently in men, and once in a child about eight years old, situated on the inner side of the popliteal space, and at a short distance above the fibula; lying, in fact, beneath the tendons of the semi-tendinosus and semi-membranosus.

In dissecting bodies in the rooms, tumors of this kind have been found twice situated in the popliteal space, consisting of a cyst containing a viscid fluid of a yellowish colour, and situated close to the bursa, under the semi-membranosus muscle in one instance, whilst in a second the fluid was contained in the proper bursa of the semi-membranosus tendon, and consisted of a fluid resembling apple-jelly. The following is the note of one of these cases:—

A stout muscular man was found to labour under a bursal

swelling, beneath the tendon of the semi-membranosus muscle of the right leg.

This bursa was about the size of the end joint of one of the fingers, disappearing into the popliteal space, and lying partially on each side of and below the tendon, on extension of the knee. This bursa was firmly fixed in the cellular tissue externally, being, however, smooth inside, and contained a fluid resembling rather thin apple-jelly. The bursa extended a short distance on each side of the general cavity by two small prolongations; these, however, did not open into any joint, bursa, or other cavity. A natural bursa was found lower down, on the tendon of the semi-membranosus, corresponding to the bursa usually described as lying between the tendon and the inner condyle of the femur.

This affection does not in general produce such inconvenience as to require an operation. Blisters and the tincture of iodine make the same, and as slow, an impression on swellings of this kind as on other bursal tumors; occasionally, however, the application of the tincture of iodine produces considerable increase of swelling and irritation of the part, if applied whilst pain or inflammation exists. The application of mercurial ointment is not attended with any benefit.

CHAPTER VII.

ON CERTAIN CIRCUMSTANCES INFLUENCING THE CONVALESCENCE OF PATIENTS.

Frequency of disease in patients requiring operation, or suffering from accidents. Influence of drunkenness, organic disease, and want, in rendering operations and injuries in such cases fatal. Fatal cases of delirium tremens. Occasional peculiarity of symptoms in injuries of the head of persons mentally affected, as well as in habitually intemperate persons. Occurrence of phthisis in persons suffering from fistula in ano, as well as in persons affected with disease of the spine.

The success of surgical operations, independent of the operation itself, appears to depend very much more on attention to many small, than to what might at first sight be considered the great points. Actual preparation of a patient for operation by bleeding or purging, or going through a course of anything, is rarely practised; neither, after an operation, are opiates, or any other means, ordinarily used to relieve what must necessarily happen. Although the health of patients is not attempted to be insured by doing great things, or adopting any defined course of proceeding, yet the real condition of patients requiring operation, and the existence of any particular circumstances of an unfavourable nature, are in practice accurately noticed.

The favourable termination of amputations, and other operations, in patients who have been long under treatment, as compared with the same operations performed on patients in full health, illustrates the suitable and unsuitable conditions of two great classes respectively for operation; mere reduction of the standard of health within moderate limits being often rather a gain than a loss. Independently of the existence or non-existence of disease

in parts directly connected with the organs to be operated on, which attracts attention, there are two particular conditions, which in hospital patients are often the cause of death, after injuries and operations even of the slightest kind; and an attention to these conditions is often the means of understanding the peculiarity of an apparently difficult case. These two conditions are, intemperance with its results, and disease in one or two internal organs, slight in degree, but often of considerable extent.

There are certain organs which can be readily tested as to their soundness, but many can not, and the acquisition of this knowledge must be partly gained from the patient's own account. It requires but a short attendance in the dead-house to learn that men who consider themselves as healthy may be seriously and extensively diseased, and even if the symptoms of disease had existed, but only of such a kind as were cognizable to the patient, they may not have been noticed by him. The symptoms of disease are not always plain to a workingman, in the way that they are to an educated person, and even pain, that symptom so cognizable to most, may be hardly noticed as such, by a man whose mental faculties, by his own habits, and an absence of all education, have been utterly neglected and seldom used. The history of the same ailment may be spontaneously given by one man, whilst from another it has to be gained point by point, and sometimes even then only imperfectly.

This frequent existence of organic disease in several organs of the body renders a large mass of disease very fatal, which appears at first sight curable, as well as destroys a certain number of patients after operations. Amongst those cases terminating fatally may be especially included erysipelas of the head from wounds, amputations in elderly persons, and compound fractures.

The fatality of cases in a large hospital may be very high, even in diseases which are apparently mild, and in operations which are generally successful. Where sickness is the condition of admission, all classes of disease will come; neither the existence of any quantity of disease, the refusal of every body else to treat them, nor their utter incurability, will keep them away. Few think that they are utterly beyond all the powers of the medical art; when they cease to apply for relief they still return to die, and a disease which

removes a working man from all employment, even though it be unattended by any immediate danger to life, may be to him so serious a misfortune as to induce him even to beg an operation, which affords a chance of a restoration to health, even though at serious risk to himself.

There are certain occupations and trades in London which are especially drunken trades, and the simple fact of a person belonging to them is a very bad prognostic for sickness. These persons do not however drink at random, or drink anything, but each particular class drink after a certain rule, follow the same habits, and present nearly the same appearance. They all come to pretty much the same end at last, but they reach it by different roads.

The great beer drinkers, draymen, coal-whippers, and watermen, work much in the open air, exercise their limbs most powerfully, and though seldom of a healthy appearance, often have the size as well as the power of the finest and healthiest countrymen. These men are especially contrasted with the great spirit drinkers, who work in a hot close atmosphere, only employ some of their limbs, and often work at night or at late hours: such are often newspaper compositors, and tailors. These are the two extremes of a class; their habits and occupations are utterly different; their faults take a different turn from the same road, and the two classes present a totally different appearance for a certain time.

These men are, so to speak, moderately well off; their wages are good, their occupation pretty regular, and they are not the really poor. There are, however, many trades which are followed by the poor in mind and the weak in body, the wages of which are never high, and often uncertain: the employment of these persons hardly ceases day or night, exposes them to the greatest changes in weather, and they often serve masters little above themselves. Amongst these are waiters at low taverns, stablemen at livery stables, and prostitutes. These drink neither beer nor spirits in the same extreme degree as the two other classes, but they drink a great deal of any thing in small quantities, live on bad food, and poverty often presses very hard upon them.

These are the habits of some few classes of the persons who form the patients of a London hospital; their life ends not

unfrequently in disease, which brings them under the care of the physician, but engaged in a trade, they are liable to accidents, and are then found in the surgical wards. Here their accident alone brings them; they believe themselves to be otherwise well, but the condition of body which their habits have established, though it may not have rendered disease visible by its effects, may already have done enough to prevent their rallying from even a slight accident; for the power which has enabled them to go smoothly and actively on up to the present time, may not be sufficient to overcome any sudden check, or to correct an injury in the body itself.

The stout unhealthy drayman, who takes much of his nourishment in beer, differs often as much in sickness as in health from the pale and weakly ostler or waiter, who drinks what he can get, and works at irregular hours. The drayman is rare as a hospital patient, except for a wound on the leg, or a fracture; and then, if his ailments are accompanied with erysipelas or delirium tremens, they are often of the most destructive and violent kind: his life sometimes being lost within a few days from the sudden prostration of his powers, by extensive sloughing of the limb, or the continuous violence of the delirium. The ostler and tavern waiter, with others that come very near them in habits, the knacker and the nightman, are very common hospital patients, for little things, but those very hard to cure. Bad ulcers of the legs with irregular inflammation round them, abscesses from slight causes and wounds, which are tardy of healing, form their chief ailments, whilst low erysipelas occurs very readily in them, and they bear no active treatment. The bad leg of this last class is sometimes very severe, and bores deeply and widely amongst the surrounding tissues. In the sore leg of a nightman the anterior tibial artery burst, and in a similar disease of a stable-man the posterior tibial artery gave way from the extension of ulceration, and in both cases the patients ultimately died.

The effects of constant drinking tell by the general change on the habit and power, as well as by the production of disease; but it is extremely hard to say what degree of drinking short of the production of disease is hurtful. That it does tell appears to be beyond doubt, but every now and then some habitual drunkard

resists the powers of disease in a degree equal to that of the healthiest man. These cases are, however, exceptions, and the patient by his own words sometimes announces that he considers his recovery, after such a mode of life, as contrary even to his own expectation.

Of all diseases of internal organs produced by drinking, the granular liver seems to have attracted most attention. Perhaps justly; but there is no doubt that of all organic diseases, the two most to be feared in intemperate persons with recent surgical injuries are, the granular kidney, and slight but general emphysema, with a dilated, but not always much diseased, heart; and in persons past the middle period of life, dying rapidly in hospitals after operations and surgical injuries, combined with much loss of blood, these two affections of the urinary and respiratory organs are very far from uncommon.

The following class of cases is not uncommon:—Men are admitted with slight cuts on the chin and wounds of the scalp, which have happened one or two days previously, or they apply with recent cut heads, from which large quantities of blood are lost; erysipelas of the parts around occurs, the patients look dusky, their minds seem rather dull, and they every now and then cough, as if they were husky, or had something in their fauces. If they take antimony or purgatives, they are profusely purged, and lose strength rapidly. These patients have not a regular illness, which allows time for treatment, but their whole ailments seem to consist in being taken ill and then rapidly dying; they apply for admission one day, and sometimes die the next. These patients are generally men of a full and florid habit, rather old than middle aged, and free livers, but strong and active. In examining their bodies the liver is not always much or decidedly diseased, but the kidneys are more or less granular, whilst the lungs are considerably emphysematous, and often loaded with blood and fluid. The kidney and the lung in these cases are not generally in an extreme state of disease, but disease in a slight degree is very generally distributed: thus there are no bladders or extreme emphysema of any one part of the lung, but the cells in every part are more or less affected, whilst the kidney is not contracted, but mottled and dotted in every part.

Surgical disease is not only complicated by old organic disease pressing with a dead weight on the powers of the patient, but a recent acute affection arising in a patient already surgically ill, is not unfrequently fatal at a very early period.

The low fever of the metropolis and large towns, by accidental circumstances—as mortification of the limbs or portions of the ear—shews how far the patient may be reduced by it alone; and hence it is not a matter of surprise, that even mild surgical ailments, when fever is added, should assume a severe character, or that the fever itself should terminate fatally, when the patient is already reduced by injury or operation. The simple discharge of gonorrhœa, which produces generally mere excoriations, is, under the influence of low fever, a cause of the most severe form of sloughing phagedena; and three instances have occurred, in which patients, hardly aware of any important affection of the urethra, have been attacked, during convalescence from fever, with sudden effusion of urine into the perineum, from the urethra giving way. Scarlatina, unaccompanied by any particular circumstances, has been known, when occurring in a patient from whom a testicle had been removed, to destroy life by the rapid failure of the patient in a few days. In these cases a distinct and well marked fever is added to an already existing ailment, and the severity of the illness is materially increased; there are, however, surgical cases of the most serious description in which one cannot say that any thing is added, but can only consider what might at first seem a peculiarity as a necessary accompaniment of the case. Exclusive of compound fractures, and other serious injuries, in which fever of a low type often occurs, there are surgical cases still more closely resembling low fever. At the bedside of many cases of traumatic erysipelas, some patients after operation, especially after the removal of deep-seated tumors, and even in some cases of simple injuries, as broken ribs, one recognises the general condition of low fever, with the want of any prominent indications for any special treatment, but with the necessity of constant watching for the commencement of local affections. In looking over the notes of these cases, their resemblance to cases of low fever is very marked; there is the same failure, where active means were used, the same necessity for support but with less

success in its employment; and the post-mortem examinations, even of some of these surgical cases, will be found to describe a soft pulpy spleen, imperfectly coagulated dark blood, and a loaded condition of the lungs, in as decided a manner as the notes of a regular case of ordinary low fever. But there is this difference; whilst the organs of the fever case were perhaps free from old disease, the notes of the surgical case will often describe a mass of changes, slight, perhaps, in any one single organ, but amounting collectively to a pressure on several of the most important functions of the body. The lungs may be free from tubercles, but they are emphysematous; the kidneys may not be granular, but they are mottled and pale; the liver, though not hobnailed, is greasy and yellow, and though the heart is not enlarged, there are old opacities in the arteries and on the mitral and aortic valves.

The three chief affections destroying patients, after operations and injuries—the general habit produced by drinking; secondly, organic disease in the lungs and kidneys, especially emphysema in the former, and granular disease in the latter; and thirdly, tubercle—act very differently, and at different periods. During the early period, and often for weeks after operations, patients labouring under tubercular disease do well; and it is often only at the absolute return to health, rather than during the recovery from the operation itself, that the effects of tubercle begin to shew themselves. Organic disease produced by drunkenness, and habitual drunkenness, act differently; the organic disease presses heavily at every period, and may destroy life either early or late; but the mere habits of the drunkard shew themselves chiefly at a very early period. The patient, who nearly sinks from his unsound organs within the few first days, often lags on for days and weeks in danger; but the man who has simple delirium tremens is taken ill directly, and often dies, but if he recovers from his delirium he generally gets well from the operation, and sometimes quickly.

Amongst the number of poor in a large hospital there are many whose ostensible ailment is very slight, but who are admitted for the cure of this ailment, and especially to improve their wretched condition. For these a comfortable bed and good food are the principal medicines required. It not uncommonly, however, happens that patients with very serious disease are admitted,

who have been already reduced by want and misery, and then this low condition adds most materially to their illness, whether it be that which is capable of relief by operation, or be real organic disease. It seems that under these circumstances patients labouring under organic disease may sink before their time, or before the disease has reached its ordinary fatal period, from the additional illness induced by poverty or mental distress. For instance, the following case of hernia appeared to terminate fatally, not by its actual severity, but from many circumstances collectively, reducing the patient's powers.

A woman, only thirty-three years of age, was admitted, under Mr. Stanley, with a small femoral hernia, which had become strangulated a week previously: she appeared not to have been regularly treated by any body, but somebody had sent her some medicine. The abdomen was flaccid, and nearly free from pain; the tongue was still moist; the hernia unaccompanied by much pain; and the pulse simply feeble. She had, however, constipation, fœtid vomiting, and the rupture was irreducible. In appearance she was thin and haggard, with sunken eyes, and seemed so broken down by want of every kind, that she appeared hardly aware of the danger of her condition, and almost inattentive to pain. The stricture was not close; there was some fluid in the sac, with a portion of dark but healthy small intestine.

After the operation she was uneasy, and lay with her legs drawn up; the pulse was 100, and became decidedly hard. Twenty leeches were applied to the surface of the abdomen, and the pulse became soft. She took one drachm of Epsom salts, and was purged even by this quantity.

She gradually died. Dissection shewed the bowel, which had been returned, lying near the femoral ring, and coated with a thin layer of lymph, its mucous membrane red, and slightly ulcerated in one spot. There was some little vascularity of the peritoneal coat of the small intestines, and a small quantity of clear fluid in the pelvis.

Again; in this case, however, the man laboured under slight disease of many organs.

A man of 22 years of age was admitted under Mr. Lawrence, in a state of extreme weakness, so that he tottered, when he tried

to stand without support; he was also extremely pale, and somewhat emaciated. The sight of both eyes was so completely gone that he could only partially distinguish light from dark, without any power of distinguishing the position of the strong light, or the windows of the ward. The eyes presented nothing unusual, except an almost motionless condition of the pupils, which were midway between dilatation and contraction. The conjunctiva of one eye was ecchymosed from a recent blow on the forehead, but the most troublesome symptom of this patient was incessant vomiting, which induced him to apply for relief. The food and nourishment taken by him were rejected unaltered within a few minutes; there was frequent vomiting during the day, with nausea, and a tendency to vomit when the thoughts of food occurred to his mind.

He stated that seven months since he was out of work, and went about the country to obtain some: he walked over various parts of England, in want of food and clothes, as well as almost every necessary of life, being utterly unable to find work for four months. At the end of this period, three months since, he found his sight to be dim, and therefore applied to a medical man, by whom he was bled from the arm, amongst other things, and ultimately by some accident salivated. Under these circumstances his sight completely failed; he was salivated, and had a severe diarrhœa; the substance voided consisting (according to his sister's account) chiefly of blood. About this period he first began to vomit, which he has continued to do ever since, during a period of about ten weeks, the matter vomited being occasionally mixed with blood, the vomiting occurring frequently each day, especially after taking food. The remedies tried in the hospital consisted of opium, calomel, prussic acid, blister to the occiput, and an embrocation of olive oil and croton oil over the stomach: these, to a certain degree only, diminished the vomiting, but he died within about a fortnight from admission.

On dissection, the head presented nothing unusual, except a most decided paleness of the cortical substance of the brain, as well as of the vascular fringes of the ventricles. The lungs were emphysematous here and there in patches on their surface, whilst in the cellular tissue of the chest, between the lung and pulmonary

pleura, numerous small ecchymoses of blood existed, which in some places were almost confluent. A few tubercles existed in the apex of the lungs, which also presented one or two distinct spots of effused blood. The liver, spleen, and pancreas, were quite healthy; the left ventricle of the heart was large and its walls were thickened. The kidneys were granular and lobulated; the cortical substance pale, diminished in size, firm, and speckled with red and yellow dots. The œsophagus presented several deep vertical fissures of its lining membrane, near the cardiac orifice. The stomach presented a firm entire mucous membrane, of a general dark colour, with black veins, whilst the mucous membrane itself was in parts apparently ecchymosed. The lower part of the small intestines, as well as the whole course of the large intestine, presented streaks of bloody mucus, on the membrane, which in the cæcum, and first part of the colon, was marked with numerous small ulcers of a round form, and separate. The whole mucous membrane of the large intestines, and lower part of the small intestines, presented numerous ecchymoses, in some parts so great as to render the mucous membrane quite sodden with blood. We next come to Delirium Tremens.

The most severe cases of delirium tremens occur in hale, stout persons, habitual drinkers, but not necessarily often intoxicated, and after large losses of blood. In these persons the attack sometimes commences at once, and is attended with the greatest violence, and the most frightful visions.

The following case presents an example of the most severe form :—A muscular forgeman from the Welsh hills, coming up to London, fell asleep on a coach, tumbled off, and broke his humerus high up, with enormous effusion of blood into the parts round. He was admitted under Mr. Stanley's care. This man was reported to drink four gallons of beer daily, and his accident happened June 1. He was rather long in the descriptions of his misfortunes, but not particularly so, and remained going on well till 11 P.M., on June 3rd. At this time he suddenly woke up, jumped out of bed, and threatened to hit a patient, believing him to be a fiend, and supposing himself to be surrounded by evil spirits on all sides. He was quieted, and remained so, describing the horrors of hell, which had been before him. This lasted only

till 1 in the morning; his visions of torture then again returned, he broke his straps, and woke the patients in the different wards with his screams. He took some laudanum, but not in any large quantity, and part was rejected by vomiting. At 5 in the morning he fancied himself drowning, and in the midst of his shrieks was seized with shaking in every inch of his body, and died within eight hours of the time when he had been sound asleep, apparently doing well. There was some little old opacity in the arachnoid, but except his recent injury, he had the organs of a sound and healthy man.

Cases have been described in which patients apparently recovering from delirium tremens have suddenly failed and died. These cases make a great impression on the friends, and are often sources of anxiety to others: they may be, and probably are, unavoidable in many cases, yet still when large quantities of opium and spirits have been given, sudden death, with cerebral symptoms, is a most unpleasant occurrence.

1. A stout working man was admitted under the care of Mr. Lawrence, with a broken leg: delirium tremens of the most violent nature ensued in the evening of the second day: during this night, the third day, and the following night, he took very large quantities of laudanum. He closed his mouth so firmly that it was given as an enema; this producing no effect, a pipe was introduced through the nose into the stomach. On the morning of the 4th day his ravings had ceased; he was sensible, and thankful for what had been done. He now took some solid food, meat with potatoes, which he seemed to relish. Soon afterwards he had a fit, and died rapidly. No examination was allowed.

The following case resembles this in some particulars, and an examination was allowed:—

2. A woman, about 48, was admitted under Mr. Stanley, with a cut head, which was followed by delirium tremens. She took large quantities of gin and porter, with small quantities of laudanum. On the 9th day, whilst rambling and moving about, she became suddenly motionless, and apparently dead. From this condition she however soon recovered, again to rave and move about. She again became suddenly quiet, and died rapidly.

Dissection shewed old disease in many organs, with four ounces of recently effused blood on the upper surface and base of the brain, as well as a small quantity of effused blood on the upper part of the left posterior lobe.

3. In another case of severe delirium tremens, the man had a sudden rigor, and then rapidly died. Dissection shewed nothing in the head, except some old opacity of the arachnoid.

Amongst the patients with injuries of the head, who ultimately get well, are some who have previously had some peculiarity of mind, sufficient to make them considered odd, but not regularly insane. Many of these persons recover very slowly, and their symptoms are often so unfavourable for a long time, that serious injury is suspected. The peculiarity of mind is at times remarkable during their recovery; they often appear heavy and dull, but are remarkably quick on certain subjects, and often in the midst of their apparently careless notice of surrounding objects and persons, are found to be taking accurate notice of every thing, and seem even to feel without displeasure that they are supposed to be very dull. Cases of this kind have occurred at St. Bartholomew's Hospital, in which, from the slow progress, and impairment of faculties, the skull was supposed to be injured, but ultimately these persons recovered: this recovery, however, seemed incomplete to a certain degree; for, even long after, these persons appeared shaken, and still affected to a certain degree, by the shock which their brain had received. These cases resemble very closely another class, of which the following is related as a remarkable instance, in which an injury of the head is accompanied with ordinary symptoms, but where these symptoms fail to yield, either at the ordinary period, or to common means: the employment, however, of the accustomed stimulus of spirits immediately produces a marked change. It is not clear that this peculiarity does not occur at times, even in young boys, when at markets and other places they have begun to drink very early in life:—

Thomas Baker, æt. 35, admitted February 15th, 1843, under Mr. Stanley. A man of rather unhealthy appearance, quite unable to give any account of himself, and not fully conscious of the nature of surrounding objects. There is nothing unnatural about

his skin, pulse, or any external part, which appear unaffected, and not in an unhealthy condition, the skin being moist, and the pulse not very different from the standard of health. He lies in a comfortable position on his back, sleeps at times, passes his water and motions regularly, but only notices surrounding objects by a stare of the eyes without saying any thing, but resisting attempts to move his limbs, and more particularly to open his mouth. He is a bricklayer, and of intemperate habits, but was always well till three days before admission, when he fell out of a cart, cut the side of his head, and was brought home insensible, in which condition he remained till admission, and from that period until about February 17th. He passed his motions once under him, answered all remarks by "yes" or "no," without any apparent idea of their meaning, but managed to make his wants just intelligible to the nurse; beyond this condition he did not however advance.

About the 17th the sister of the ward gave him a little gin, and he brightened up in so marked a manner, that it was resolved to treat him with some form of beer or spirits. Previously to this he had been treated with nutritious food, aperient medicine, and two blisters at the nape of the neck.

On the 17th he was ordered to take a pint of porter daily, which he continued till his discharge, on the 10th of March. During this period he gradually improved, except for one or two days when the porter was omitted. His gradual recovery may be thus described, beginning at the 17th of February. He seemed at first to be conscious of surrounding objects and persons, but not able to recognise their distinctive characters, nearly all seeming much alike. Questions put to him attracted his attention, but did not elicit any other answer than "yes" or "no." In a few more days he began to attempt to give answers, which indicated comprehension of the question, as well as power of reasoning; these answers began correctly, and continued for two or three words, but then terminated abruptly. Though he seemed to have arrived at the just conclusion when he began to speak, his mind appeared to be incapable of continuing its action to the end of the comparatively long period required for the ex-

pression of his ideas, whilst his recent thoughts seemed not to recur again to him. He was able to walk a moderate distance, not however without shaking, or liability to fall on getting back into his bed. His consciousness, powers of exertion, and reasoning, gradually improved from this imperfect condition, and he had on his discharge, March 10th, 1842, nearly regained his usual condition of health. On March 10th, the note says, "he is up most of the day, and has the use of all his senses quite perfectly, with the exception of some slight dimness of sight. He can answer questions quite well, and states that he remembers nothing from falling out of the cart, till he found himself in the Hospital in bed."

The following circumstances illustrative of the co-existence of phthisis with fistula in ano and disease of the spine have been noticed.

The frequent occurrence of fistula in ano, at the same time as tubercles in the lungs, appears to be free from all question, whatever connection there may be between the two affections. A certain number of patients apply for relief for fistula, in whom phthisis is so undoubted, that any operation is refused. The following sixteen notes were taken indifferently of patients with fistula in ano admitted at different periods, in whom the chest was carefully examined. In six, probably seven, phthisis appeared to exist; these cases, perhaps, do not show an absolute connection, that is, they do not show that the fistula was a tuberculous ulcer originally; but the circumstances attending the fistula in the cases of phthisis were remarkably similar.

These six patients, with one exception, were young: the fistula came apparently of itself, without cause. Cough, or hectic fever, or hæmoptysis, or emaciation, were mentioned where a history was obtained. The physical signs of tubercle were present, and, with one exception, tubercles only, not cavities. In this one case a cavity existed; the fistula had been divided, and the cough had commenced two months afterwards. In two cases the fistula occurred after fever; in one of these the patient had suffered from hæmoptysis, and the chest was in a doubtful condition.

No.	Sex.	Age.	Alleged Cause.	Condition of Patient.	Condition of Lungs.
1	Male	29	Spontaneous	Getting thin, cough, sweats, hæmoptysis	In apex of right lung air admitted imperfectly, breathing loud and coarse
2	Male	27	Not stated	Died of disease of spinal cord and brain	Crude tubercles in apices of both lungs
3	Male	51	Not stated	Healthy; hæmoptysis for 34 years	Heart's sounds good, some dulness of left apex, expiration loud on both sides
4	Male	34	Not stated	Cough, hæmoptysis	Not examined
5	Male	30	Spontaneous	Thin, with cough	In upper third of left apex diminished respiration with some dulness
6	Male	18	Spontaneous	Cough, sweats, and loss of flesh	Right lung — inspiration feeble, expiration loud; apex—dull in front; subclavian region—flat, with an occasional click
7	Female	24	Spontaneous	Thin, cough for three weeks; fistula divided three months since	Physical signs of cavity in right apex
8	Female	25-30	Not stated	Healthy	Healthy
9	Male	47	Not stated	Healthy	Healthy
10	Male	52	Spontaneous	Healthy	Healthy
11	Male	58	Piles	Healthy	Some bronchitis and emphysema
12	Male	40	Piles	Healthy; "burst a blood-vessel some years since"	Some bronchitis and emphysema
13	Female	28	Blow	Healthy	Healthy
14	Female	23	Blow	Healthy	Healthy
15	Female	22	After fever	Fat, hysterical; had acute rheumatism, cough, and occasional hæmoptysis	Healthy (doubtfully)
16	Female	21	After fever	Pale	Healthy

The presence or absence of ulcerative disease of the rectum in connection with scrofulous changes in the lungs, is a matter of interest, as bearing on the question of the coexistence of fistula in ano and phthisis. The following table contains the condition of the bowels, and an especial note of the rectum, in thirteen cases of phthisis:—

MANCHESTER MEDICAL SOCIETY

No.	Sex.	Age.	Lungs.	Small Intestines.	Cæcum and Colon.	Rectum.
1	Male	19	Cavities	Ulcerated	Ulc. to desc. col.	No ulcer
2	Male	19	Cavities	No ulcer	No ulcer	No ulcer
3	Male	54	Cavities	Ulcerated	Ulc. to sigm. flex.	No ulcer
4	Female	—	Cavities	Ulcerated	Ulcerated	No ulcer
5	Male	25	Cavities	Ulcerated	Cæcum ulcerated	Ulcerated
6	Female	45	Tubercles	No ulcer	Transv. col. ulc.	Almost healthy
7	Male	25	Cavities	No ulcer	No ulcer	One ulcer, ½ in. from anus
8	Female	—	Cavities	No ulcer	Ulcerated	No ulcer
9	Male	30	Cavities	Ulcerated	Cæcum ulcerated	No ulcer
10	Male	24	Cavities	Ulcerated	No ulcer	No ulcer
11	Male	25	Cavities	No ulcer	No ulcer	No ulcer
12	Female	38	Tubercles	No ulcer	No ulcer	No ulcer
13	Male	43	Cavities	Ulcerated	Ulcerated	Ulcerated

What is the result here shewn? In three cases the intestines were entirely healthy, whilst in two they were ulcerated throughout. In four cases the small intestines and colon were ulcerated, in one the small intestines only, in two the colon only, and in one the rectum only, but in that case the ulcer was just in the situation of fistula.

Let us now turn to diseases of the spine:—

In twenty-four patients with supposed disease of some part of the spine, or lumbar abscess, or both, the chest was carefully examined. Of these twenty-four, the chest appeared to be sound in eighteen; in the remaining six the following signs of thoracic disease were found:—

One had the physical signs of a cavity in the apex of the left lung.

In three, crude tubercles were found in both lungs after death.

Two had suffered from hæmoptysis; and in these two cases the apex of the left lung admitted less air than the right.

The resemblance between the cases of fistula and the disease of the spine, in reference to the thoracic affection, is remarkable. In both tubercular disease occurred occasionally, and then of a chronic form, and in both the fistula and disease of the spine appeared to commence whilst the tubercles were crude.

CHAPTER VIII.

AFFECTIONS OF JOINTS.

Occasional severity of pain in inflammation of the synovial membrane. Disease lingering in one joint after rheumatism, its destructive action and occasional want of marked symptoms. Sudden acute disease of joints in healthy persons, terminating in anchylosis without suppuration. Disease affecting the fibrous structure of a joint alone. Disease of the hip in a child, suddenly followed by dislocation, apparently without ulceration of the joint. Disease of the hip suddenly fatal, with cerebral symptoms. Anchylosis of the hip. Distension of the knee joint with fluid. Case of loose cartilage. Lumbar abscess, containing an unusual quantity of matter. Affection of the spine, in which the symptoms resembled partly those arising from injury, as well as partly those arising from disease. Dissections of a contracted finger, of a case of talipes varus, and of contracted toes.

It is remarkable how accurately the exact period at which ulceration commences in a joint may often be determined, and how seldom the peculiar signs of ulceration of cartilage are connected with any other change in a joint; yet sometimes acute inflammation of the synovial membrane, and that in cases connected with rheumatism, or after exposure to cold, is accompanied with symptoms of so severe a nature, as to resemble in many respects ulceration of cartilage.

In these cases there is severe pain on moving the joint, or pressing its articular surfaces on each other; the patient is liable to sudden attacks of pain, and finds no relief from letting the joint hang suspended. If these conditions were present in a joint which had been diseased for many months, where matters had been slowly getting worse and worse, and where destruction of the joint might be looked upon as likely, it might justly be considered that ulceration of cartilage was occurring; but in these cases of disproportionate suffering here alluded to, combined with simple inflammation of

synovial membrane, the accompanying fever is greater than that commonly accompanying ulceration of cartilage, when occurring as a sequence of long standing disease of the joint; and there is not the awful agony of acute disorganization of a large joint commencing as such. The relief attending the administration of internal medicines, and the local abstraction of blood, give a degree of relief in these cases which cannot be obtained from these means in disorganizing ulceration of a joint. So marked, indeed, is sometimes the relief from proper means, and the restoration of the healthy condition of the joint, that these cases of apparently severe disease get well before cases of common synovial inflammation, which have been destitute of severe symptoms of any kind.

An attack of chronic rheumatism generally leaves the joints somewhat stiff, swelled, and painful; from which condition they slowly but ultimately recover, unless another or more attacks supervene, and by small and successive additions so materially affect the joint that complete recovery occurs with difficulty. It occasionally, however, happens that one joint remains hot and painful after the affection of all the other joints has subsided, and when this occurs, this single joint is with great difficulty restored to its healthy condition, and is extremely liable to become more or less seriously disorganized in a very short space of time. Thus a single phalangeal joint of a finger remaining swelled and hot after all the affection in the other joints has subsided, has been found almost on the first serious examination of the part deprived of cartilage; or in a patient lying quietly in bed, and complaining of an aching, and an aching only, in one hip, the head of the femur has been found lying on the dorsum of the ilium. In short, however slight the lagging inflammatory symptoms may be, or however trifling the dull aching may be in a single joint, after the removal of an attack of rheumatism, so as these signs do exist, they should be a source of the greatest anxiety.

When all the joints are restored to an apparent condition of health after an attack of acute rheumatism, and the person performs all the duties and acts of life as well as he ever did, he may, perhaps, be considered well; but the simple fact of the joints having once been attacked, is alone an unfavourable circumstance, and appears to render them more liable, even at a comparatively

distant period, to disease. After a complete recovery for three years, disease in the hip may occur, in an otherwise healthy person, so entirely unconnected with any recently acting cause, that it can only be considered as the lighting up of an old rheumatic affection.

Cases are occasionally met with of disease commencing suddenly in a joint without any evident cause, and terminating rapidly in firm anchylosis. In these cases pain occurs suddenly, without any evident cause, in one of the joints of a person in good health; this is rapidly followed by swelling of the joint, or of the whole limb, with general fever. From the first there is the most acute pain on moving the joint, but no very severe pain at other times, except in occasional paroxysms during sleep. At the end of three or four months, the inflammatory part of the affection is removed under treatment, leaving the limb in its natural condition, except that the affected joint is firmly anchylosed.

The cases related below are instances of this affection in the elbow joint of women: looking to the result, it would seem, from the very slight degree of motion observed ultimately in these two cases, that the union was not then formed by bone, whilst the short period in which the disease ran its course, the solidity of the joint resulting from it, and the want of any indication of suppuration, pointed to the probability of the disease consisting in the effusion of lymph into the joint, or the union of the two articular surfaces by granulations.

1. A girl, aged 19, was admitted into the hospital, May 16, 1842, under Mr. Stanley; she was pale, but moderately healthy, menstruating naturally, labouring under slight general fever, with a small but hard pulse, suffering chiefly from an affection of the arm. The right arm, from the fingers to about the insertion of the coraco-brachialis, is swelled, with some firmness, but without any redness of the skin. The elbow is slightly flexed, and free from any severe pain, except on motion, which produces the greatest agony. Previous to the 2nd of May she was quite well. On this day she was cutting some bread, when she was suddenly seized with so severe a pain in the elbow that she dropped the knife, and has been quite unable since to use the elbow or arm for any purpose. She has been chiefly confined to her bed, the pain not being gene-

rally severe, but occurring in occasional paroxysms and disturbing her rest.

June 1st.—Since admission, she has taken some occasional doses of antimony and purgative medicines; the chief treatment has, however, consisted in keeping the arm quite quiet, and applying leeches frequently. The elbow, fore arm, and hand, are still quite œdematous, and the joint quite as painful on any attempt at motion.

July 6th.—The occasional employment of leeches to the joint has been continued. The swelling of the arm is nearly all removed; the arm has become somewhat more straight since admission, but is just as painful on any attempt at motion.

This girl went out in the autumn. The swelling and pain had subsided; the elbow had been bent forcibly, so that it was nearly at a right angle, but it was apparently nearly fixed in this position.

In November, 1843, I saw her well in health. The arm was bent, muscular, and of its natural size, but apparently quite firmly anchylosed, not the least motion being performed by the elbow in any way.

2. A respectable woman applied to Mr. Stanley at the hospital, in February, 1843, on account of stiffness of the elbow joint, being otherwise quite well and in good health. The left elbow was free from any pain, heat, or swelling, but bent at an obtuse angle, and thus incapable of being well raised to the head. The fore arm was supinated, and the elbow only admitted of the slightest degree of flexion and rotation; this slight motion was, however, unaccompanied with pain. She knew no cause whatever to which she could attribute the affection. Five months since, she had an aching pain in the left shoulder, which did not by its severity confine her to bed, but after lasting for two or three days, was followed by a sudden pain in the left elbow, which was very severe, succeeded by swelling of the joint in a short time, and obliged her to lay up in bed. She also stated, that the pain in the shoulder gradually subsided, whilst the pain and swelling of the elbow increased rapidly, and was accompanied with fever. Under the employment of general means, and leeches to the joint, the acute affection subsided in about fourteen weeks, and her arm was placed in its present condition, which it has maintained during the seven weeks which have elapsed since.

Disease is seen to affect the synovial or cartilaginous tissue of a joint separately, and often to limit itself for a considerable period to one of these structures. In the following case the fibrous sheaths and ligaments of the knee-joint were almost exclusively affected, and that to such a degree as to lame the man almost completely:—

A stout healthy man, about forty years of age, was admitted in January 1843, labouring under relaxation of the right knee-joint, with a slight affection of the left. He was not liable to rheumatism. The right knee was sprained four years since; he worked for some weeks, and then lay up in bed more or less till September 1842, since which he lay up altogether. This knee is not swelled or painful, but the sheaths of the tendons on the outer and inner side of the knee crackle under the hand when pressed, whilst the tibia slides forwards and backwards on the femur in flexion and extension, the sartorius at the same time slipping over the edge of the femoral condyle, so that from the crackling of the sheaths, the slipping of the tendon, and the sliding of the bones, the joint has completely lost the firm gradual motion of a healthy knee; the inner condyle is also distinctly enlarged, swelled, and rough. He can hardly walk up stairs, and only walks comfortably with his knees quite straight, and to strengthen them ties a handkerchief just below the knee over the tendons in that situation. He states that the left knee was hurt eighteen years since, but is sound and good; this joint, however, crackles considerably under the fingers in the sheaths of the tendons on the inner side, but otherwise appears sound. This man remained in the hospital a short time, and then went out as on admission.

Cases have been recorded of disease of a rheumatic form occurring in joints, accompanied with such changes in the fibrous capsules as allowed dislocation to occur. The following case resembles these in its results, but it differs from them in a most marked manner in one respect, inasmuch as it presented itself as one of ordinary diseased hip in a child, and was probably of the strumous kind; but the symptoms of any active disease were absent, the head of the bone remained entire, and the mildness of the symptoms, with the seriousness of the result, could only be explained

on the supposition of the lengthened capsule allowing the head of the femur to be separated from the acetabulum by fluid, in the same manner as it may be by air in the dead body, and being subsequently drawn from its new position upon the dorsum ilii by the action of the muscles :—

A girl, aged six years, was admitted May 4, 1843, under Mr. Stanley, of delicate appearance, not very thin or unhealthy in form or other respects, but labouring under lameness of the right hip. The child is slightly lame, and unwilling to move the right limb, the hip-joint of which is painful when moved. The pelvis is drawn up, and renders the limb apparently short; but nothing like decided shortening or dislocation can be seen. It appears that one month since the child fell down and hurt her hip. Two weeks since she complained of pain, which has increased since to such a degree as to require her admission into the hospital.

She was ordered to be kept quiet in bed, and a poultice was applied round the joint.

She lay in bed for six weeks, when the hip was again examined. There appeared to be no cause for anxiety in this particular case, as the child appeared to be going on well. The following was, however, the condition of the joint.

The distance between the knee and anterior superior spine is shortened one inch and a half, the limb very slightly inverted, the head of the bone carried right upwards and backwards, especially in the latter direction, on the dorsum ilii. The parts are to be freely felt in their new situation, where they are fixed, nearly free from pain, and without surrounding thickening in any marked degree. This girl went out in October, tolerably well in health, the limb remaining in the same condition. The thickening round the head of the femur was not great, and the head of the femur appeared to be entire.

Such was the result in a case which, on admission, did not present one single feature to distinguish it from a class in which the changes are generally slow, and in which a dislocation of the joint unattended by destructive changes either in the acetabulum or femur would not be thought probable. It seemed that in this case the bones were probably entire, and that the case may be

classed with those described by Dr. Heine,* in which dislocation took place from disease of the hip in young persons, and in some of which the femur was artificially and permanently reduced to its natural situation at a subsequent period.

Unusual results ensuing in ordinary cases strike one's attention so forcibly, that even without a satisfactory knowledge of the real cause of the peculiarity of such cases, the case itself assumes an extraordinary interest. The following case of disease of the hip presented nothing unusual on admission, but within a month the child was dying of symptoms resembling those of acute affection of the brain, whilst the symptoms of the diseased hip were now in such utter abeyance, that the child in its delirium assumed the very position which is least in accordance with disease of the hip-joint :—

A delicate girl, six years old, was admitted, under Mr. Stanley, in moderately good health, with pain in the hip, lameness, pain on motion, and with a slight bending of the knee. There were no marks of acute disease, no abscess, nor any peculiarity to distinguish it from common chronic disease of the hip. The disease was said to have arisen about two months previously, but not to have been accompanied with any severe symptoms. The father and mother were healthy, but had lost one child, about eight years old, from convulsions. She was kept quiet in bed; six leeches were applied to the joint on the second day, and four on the fourteenth day. A plaster of strong mercurial ointment was applied around the joint.

On the twenty-fourth day, the parts being tolerably quiet and much the same as on admission, a caustic issue was made behind the joint.

On the two or three days after the application of the issue the child was feverish and hot, lying gathered up in a lump in the bed, and not noticing things going on around it.

On the twenty-ninth and thirtieth days, the child was very sick, and took hardly any food; was hot, with a frequent and not very feeble pulse. She now sat quite upright on her hips in bed,

* Ueber spontane und congenitale Luxationen, von J. Heine.—Stuttgart, 1842.—A very complete abstract of this essay is contained in the British and Foreign Medical Review, vol. xvi. p. 486. The original paper and the plates are, however, most instructive.

regardless of her diseased joint, staring wildly, and unconscious of the presence of her mother, but noticing objects and the light occasionally. The issue remained unseparated and dry.

On the thirty-first day she was pale and quite unconscious, whilst her neck and head were stretched forcibly backwards. She died on this day. No examination was allowed.

Sometimes, after disease of the hip joint, the patient's hip becomes firmly anchylosed in a straight position, without any alteration in length, and with the foot but slightly inverted or everted; the head of the bone, in short, remaining entire, but firmly fixed into the acetabulum :—

In the spring of 1843, there was under the care of Mr. Lawrence a boy, who had recovered some time previously from a diseased hip. In this boy the two lower limbs were equally muscular, and of the same length, the left limb being somewhat everted, and quite extended. The hip joint was quite fixed and immoveable.

When a patient has disease of the hip at an early period of life, and the recovery takes place even after the formation of abscesses, the limb frequently is still very useful. The following is an instance of a useful limb, even though dislocated on the dorsum ilii :—

In the summer of 1840, a man, æt. 35, applied at the hospital for some other ailment. He had been treated with a seton for disease of the left hip, accompanied with abscesses, twenty years previously, by Sir W. Blizard. He was now conductor of an omnibus, and was able to run and even jump over a chair; the two legs could not, however, be separated sufficiently to enable him to ride. The pelvic joints were very moveable; the limb was shortened about two inches, and thinner than the opposite: from the shortening of the limb the heel was raised considerably, and the toe directed in such a manner downwards and forwards as to constitute talipes equinus.

These two cases are examples of limbs anchylosed in the straight position, with and without shortening, and with the foot neither much inverted nor everted: the limb, under such circumstances, though much inferior to that in the healthy condition, is very useful, and the patient can walk moderately well. When the femur is drawn up on the dorsum ilii, and the head of the bone is destroyed, the femur is not generally very much inverted, but only

flexed on the pelvis. When, however, the head of the bone is entire, the limb is generally much inverted, as well as considerably flexed.

The greatest distance up the thigh to which the fulness of the synovial membrane has reached, has been six inches above the upper edge of the patella, the circumference of the joint measuring in this instance nineteen inches and a half. These measurements were taken from the knee of an elderly man, under Mr. Lawrence's care, who was labouring under rheumatic inflammation of the joint; the synovial membrane appeared to be hardly thickened, but to be simply distended, and great diminution of the swelling took place under the employment of tartar emetic ointment. The possible height to which this membrane may reach is a matter of the greatest importance in relation to the opening of abscesses, and to the removal of growths from the femur. It seems also that the synovial membrane, after being much distended, recovers its natural relations slowly; and that the synovial membrane of the knee may still remain lying on the femur above its natural position, after the subsidence of its distension might seem to indicate that it had recovered its natural position.

The thigh bone, though surrounded on the front and sides by the extensor muscles of the knee, affords but little origin for their fibres, the crureus and the small muscle of the knee-joint only arising from it in this part. This is most important in relation to the knee-joint; for it is in this large space, extending from the tip of one side of the linea aspera round to the other, and separated into two divisions by the crureus, that abscesses of the largest size may accumulate. It is in this large bed of cellular tissue that a tumor, apparently only covered by the fascia lata, may lie; and here an abscess may form, which, although opened in the thigh, may, from the muscles binding it down, burst by two openings into the cavity of the knee-joint. The example of growths beneath the abdominal muscles, and the occasional difficulty of ascertaining their situation, afford parallel instances to the thigh, of the obscurity which often attends an attempt at ascertaining whether a part may or may not be covered by muscle; but it requires an especial examination of the size of this deep and free space beneath the vasti muscles, to form a correct idea of the mass

of cellular tissue here ready for the bed of tumors, or for the collection of matter bound down by the most powerful muscles, and lying in absolute contact with the thin synovial membrane of the knee-joint.

Sir Everard Home, in a paper on loose cartilages in joints, alludes to the opinion of Mr. Hunter respecting these substances, and states that the cartilages found in the knee-joint appeared to him to originate from a deposit of coagulated blood upon the end of one of the bones, which had acquired the nature of cartilage, and had afterwards been separated. How far this opinion is borne out by later observations may be doubtful, but the following case is interesting in relation to the opinion of Mr. Hunter :—

A man, about 19 years of age, was admitted under Mr. Lawrence, in October, 1840, with great swelling of the synovial membrane of one knee-joint, from a fall, in which three men fell together upon his knee. The swelling gradually subsided, and the man went out in about three weeks. This man was again admitted under Mr. Lawrence, in the summer of 1841, labouring under sudden attacks of pain and lameness in the same knee, from a loose cartilage in the joint; these signs having commenced about six weeks previously. An incision was made on the outer side of the knee, and the cartilage removed. This cartilage was flat, of the size of a small broad bean, and had a small process of synovial membrane attached to one side. The man did quite well.

The following cases of lumbar abscess and diseased spine seem to find their most convenient place in connection with diseases of the joints :—

Thomas Smith, æt. 37, admitted April 25, 1842, under the care of Mr. Lawrence, labouring under a large abscess in the upper part of the right thigh, and a smaller on left side. No curvature of the spine ; no impairment of motion from paralysis in a marked degree.

He is a foot soldier in the Grenadier Guards, healthy, according to his own account, but has had spitting of blood one year since, and the apex of the left lung admits air imperfectly. Three years since he first felt pain in his back, at times of a very severe nature. The right abscess appeared six months since, and the left twelve months since. In May, 1840, the pain in the back was

so severe as to confine him to bed for three weeks. The lameness was considerable just previous to the appearance of the abscesses on the upper part of the thighs.

June 18th.—The right abscess was opened, and one hundred and ninety fluid ounces of healthy pus evacuated. The man felt relieved by the puncture.

June 30th.—The man's health remains unaltered; the opening closed by the first intention; no fever has ensued. The tumor is again filling.

This man went out, the wound discharging a little, and the left side unaltered; he could walk well, and was relieved.

The following case presented itself as one of disease of the spine. It is, however, questionable whether it may not be more properly considered as one of injury to the vertebræ, followed by disease, or as one of fracture occurring in a diseased part. The dependence of the paralysis on pressure, the sudden access of the symptoms, and the want of any reflex power, all favour the opinion of its accidental origin; yet one vertebra was wanting, and the soft union resembled the product of disease:—

Stephen Staines, æt. 17, admitted April 22d, 1842, under the care of Mr. Stanley, a feeble, wretched boy, with pallid skin and lips, labouring under profuse night sweats. There is an angular curvature about the upper dorsal vertebræ, to a considerable degree, complete loss of motion and sensation in the lower limbs, inability to empty the bladder and to retain the fæces. The lower limbs are generally bent, not at all liable to spasms, and quite destitute of any reflex motion when the skin is pinched. The upper limbs are quite natural. The curvature was first perceived two years since, and had been attended with no marked symptoms, except some pain round the loins, till two months before admission, when he lost the power of motion, sensation, the capability of emptying the bladder and retaining the fæces,—all in two days, without evident cause.

It was also reported indirectly, that two years before admission he fell out of a cart, and subsequently was so weak as to fall down frequently when he was walking. This boy gradually died, having become more and more weak, and sloughs having formed on the back and legs. During the last few days of his life he

complained of pain in the pelvis and perineum, of œdema of the penis, and constant inclination to make water, with fever.

Examination of the abdomen shewed acute peritonitis, especially in the pelvis, with abscess in the tissue round the bladder. The spinal cord was quite healthy, except just opposite the curve, where it was much diminished in diameter, healthy on its surface, but soft in consistence. The dorsal vertebræ were quite healthy, except about the situation of the fourth; here one vertebral body was almost entirely wanting, and the two neighbouring bones were also somewhat diminished in size. The chief destruction of the vertebræ was on their anterior surface, their posterior part being hardly affected. Slight suppuration had taken place round the vertebræ, which were partially united in the situation of the disease by soft substance. The part pressing on the spinal cord was the posterior edge of the vertebræ, which were placed in this position in consequence of the great destruction of the anterior compared with the posterior part.

The following dissections of contracted joints are inserted in reference to the division of tendons, as well as on account of the few opportunities which occur of examining these parts:—

A man had acute inflammation of the left annular finger, which terminated in suppuration; the pus was evacuated by puncture, and the part healed kindly without any separation of the tendon. During the few following months the finger gradually contracted, and became bent on the palm, so as to be quite useless. The finger was quite firm and rigid, not yielding the least between the metacarpal bone and distal phalanx, but was not much thickened.

The flexor tendon was divided by Mr. Stanley by subcutaneous incision, without producing the least effect. The finger was afterwards amputated between the phalanx and metacarpal bone.

The finger was examined. The skin and subcutaneous tissue, bones and joints, were quite healthy. The external surface of the sheath of the finger was shining, and but little altered from its natural appearance. The sheath formed a triangular bridle, filling the angle made by the flexure of the second phalanx upon the first, having its basis, which formed a sharp edge, situated under the skin. This sheath was somewhat thickened, and formed one

substance with the two flexor tendons, which were thin, and had lost their shining appearance. On division of the band thus formed, near the lower part of the first phalanx, the finger readily assumed the straight position.

Division in the same place during life would have enabled the finger to become quite straight; this division must, however, have included the whole part between the skin and bone. As the tendons were adherent to the inside of the sheath, over the first and second phalanx, the power of flexion would probably never have been gained, and thus the man would only have gained a stiff straight, instead of a stiff bent finger.

The following are dissections of a case of varus in the right leg of an adult, and of two cases of contracted toes in old persons:—

1. The posterior tibial artery ran down the limb, lying about a quarter to half an inch from the inner edge of the tibia, from a point six inches above the malleolus down to it.

The sheath of the tibialis posticus extended about two inches above the malleolus, up the back of the tibia; the muscular fibres ran down to an inch and a half above the malleolus. The sheaths of the flexor digitorum and tibialis posticus were quite separate.

The sheath of the flexor digitorum communis extended about an inch and three-quarters above the malleolus, whilst the muscular fibres ran down to an inch and a quarter above the same point.

The peroneo-cutaneous nerve was large, and swelled for some distance on the outer side of the foot.

The vein on the tibial side of the artery was large and full, so as to be much more plain than the vein on the fibular side.

The muscles on the front and back of the leg were somewhat pale, but not greasy in any way.

The heel was elevated, the foot somewhat inverted, and the arch of the foot much shortened from before backwards.

Division of the tendo Achillis brought down the heel considerably. The tendon of the plantaris was more separate than usual, and the cellular structure under the tendon was considerably thickened; division of this structure made very little difference.

Division of the tibialis posticus made very little difference.

Division of the flexor pollicis longus had no effect.

The flexor digitorum communis, extensor digitorum communis, tibialis anticus, and peronæi, were quite lax. Large deep incisions were made through the substance of the abductor pollicis, flexor brevis digitorum, and abductor minimi digiti, which relieved the tension of the foot to a certain degree, but did not restore the foot completely to its right position, a considerable portion of the arching being caused by the ligaments.

This dissection quite accords with what occurs during life in division of the tendons connected with a long standing varus. Division of the tibialis posticus and plantar fascia produces very little immediate result, but allows the change in the foot to be gradually and completely effected from that time. The measurements were carefully made, and shew the small distance at which the artery was situated from the inner side of the leg, as well as the relative size of the two veins accompanying it. The point at which the muscular fibres ceased to be inserted into the tendon of the tibialis posticus was half an inch within the sheath of the tendon, and only an inch and a half above the malleolus.

2. An old woman was brought for dissection in whom the right foot was distorted, the great toe being inclined outwards and forwards from its metatarsal bone, and carried beneath the toes near it, which latter were thus lifted up and bent very much on each other. The metatarsal and tarsal bones were natural in form and direction, except a small depression on the upper surface of the distal extremity of the second metatarsal bone, and a small deposit of bone on the inner side of the distal extremity of the first metatarsal bone. The two phalanges of the great toe were somewhat twisted on their axes, as well as directed obliquely outwards towards the second and third toes, so as to pass beneath them. The second toe was thus lifted up so much that its first phalanx rested by its proximal extremity almost at a right angle on the upper surface of the distal extremity of its metatarsal bone, where an old depression with bony edges was formed for it; the third toe was also lifted up. The distal extremity of the first metatarsal bone was thickened by small granular deposits on its surface, chiefly on its inner side; its metatarso-phalangeal joint was nearly natural as regards its cartilage, having, however, the internal

lateral ligament elongated from the oblique position of the phalanges. The two sesamoid bones were twisted, so that the internal sesamoid bone lay on the outer part of the under surface of the first metatarsal bone, whilst the external sesamoid bone was drawn up between the two first metatarsal bones. All the muscles of the foot were flabby and weak, but none particularly so. The left foot presented the same peculiarity as the right, but in a less degree, the neck of the left thigh-bone being also broken.

The chief point of interest, as nothing probably would have remedied such an advanced case as this, is to ascertain what was the cause of the distortion of the toes. As regards the first toe especially, it is important to notice the change in situation of the outer sesamoid bone, which sliding up between the first and second toes pressed the distal extremity of the first metatarsal bone inwards, whilst the flexor tendon sliding outwards pulled the phalanges of the great toe in that direction, and caused an angle at the junction of the phalanx and metatarsal bone.

The displacement of the 2d, 3d, 4th, and 5th toes appears to take place in the following manner.

The first phalanx is elevated and extended on the extremity of its metatarsal bone, so that it forms a more or less obtuse angle with it, whilst the second phalanx is bent on the first, and the third on the second. In this manner a more or less acute angle is formed on the dorsal surface of the toe at the junction of the first and second phalanx, on which a corn frequently grows, whilst the extreme phalanx, if bent upon the second, touches the ground with its point or even with its nail. On examining a toe in this condition the extensor tendon is sometimes so tight as to make a prominent line under the skin, and to feel painful to the patient himself. In advanced cases the flexor tendons also become tense under the toe, but in the early period of this distortion such is not generally the case. The joints of the toe are in general quite natural in structure; but where the distortion from neglect has not been attended to, the proximal end of the first phalanx of the toe is carried up on the upper surface of the metatarsal bone, so as to be placed firmly on it almost at a right angle, and to be seated in a depression of the bone itself.

The second toe is generally placed so that its distal extremity

is in a line or rather in front of the great toe, and being so situated is exposed to any pressure applied to the foot from before backwards. The common tight shoe is tight in two ways; by being too short from before backwards and by being too narrow at the junction of the middle and anterior thirds, thus pressing the foot laterally and longitudinally. If the great toe is pressed laterally, it may press up the toes next to it, or if pressure is made from the front on the points of the toes, the second and other toes may be pressed up, whilst the great toe is pressed outwardly.

The joints between the first and second, and second and third phalanges, admit readily of flexion, but the joints between the metatarsal bones and first phalanges allow extension much more readily than flexion; consequently any shortening of the shoe extends or bends these different joints respectively. The extension of the first phalanx on the metatarsal bone precedes the bending of the second and third phalanges so clearly, that the former alteration may occur alone with only a slight degree of the latter affection; but when the phalanx is thus displaced on its long axis, it is generally carried by the lateral pressure of the shoe either above or below the other toes.

This distortion, though arising generally from the pressure of the shoe, is soon rendered more marked by the action of the muscles, and indeed it is not clear that the toes may not be displaced even in bare-footed persons. The extensor tendons elevating the first phalanx, by their action on the base of the second phalanx, are incapable of extending the second on the first phalanx, from the downward pressure of the shoe, as well as from the action of the flexor tendons, which, stretched by the angle on the under surface of the metatarso-phalangeal articulation, add to the deformity by rendering the angle on the back of the toe more marked.

The following is a more severe instance of the same deformity as found in a subject brought for dissection:—

3. The second, third, fourth, and fifth toes were all extended on the metatarsal bones to a very considerable angle, whilst the second phalanges were bent to nearly a right angle on the first, the third phalanges being nearly straight in relation to the second. The

proximal ends of the phalanges of the second, third, fourth, and fifth toes rested on the upper surface of the metatarsal bones a little above the metatarso-phalangeal joints, so that the distal ends of the metatarsal bones projected out beneath the toes, their extremities being thin, partially bifurcated, and destitute of cartilage. So changed indeed were they, that even if the bones had been restored to their position, they could not have rested there. The extensor tendons were tense, the flexors ran round the outside of the second, third, and fourth metatarsal bones to the sides of the phalanges, not running over the back of the metatarso-phalangeal joints at all, whilst the flexor tendon of the fifth toe ran on the inside of the joint.

CHAPTER IX.

ON AMPUTATIONS.

Amputation of fingers. Dissection of an old stump, where the end of the metacarpal bone was left. Effects of pressure on the fingers. Amputation at the wrist and just above it. Flap and circular amputations of thigh. Division of vessels. Difference of degree of retraction of the vessels. Retraction of integuments spontaneously subsiding. Peculiarity of the stumps of the femur. Injury to vessels of the leg. Mobility of the fibula. Cicatrix on tibia after flap amputation. Calcareous arteries often unite well, and produce little inconvenience in some cases. Occurrence of phlebitis, and cerebral affection after amputation. Division of tarsus. Removal of metatarsal bone. Dissection of three ulcerated stumps, from amputation, from frost-bite, and from injury.

In amputating the fingers, the head of the metatarsal bone is often removed, and a very neat hand made, the space left by the missing finger contracting so closely that the vacancy, especially where the index finger has been removed, is very slight indeed. Some objection has been made to this operation, on account of the weakening of the hand thus produced, in consequence of the division of the strong palmar ligament, which binds the ends of the metacarpal bones together, and it has been therefore recommended in cases of labouring men, and in all persons who have to use the hand for duties requiring much strength, to forego the improved appearance for the sake of the power which is gained by leaving the head of the bone. It might be said that the little and index fingers, placed at the end of this ligament, and connected with it only by one side, are the least benefited by it; but then the removal of the ends of the metacarpal bone belonging to these fingers places the fingers next to them in the same circumstances in this respect in which the index and little finger previously were placed.

In the body of a man brought for dissection, one of the middle fingers had been removed some time before death, the metacarpal bone being left: on dissection, the chief change in the parts was the remarkable thickening of the transverse palmar ligament, near the end of the metacarpal bone of the amputated finger:— One of the two middle fingers of one hand had been removed at the junction of the first phalanx and metacarpal bone, at some distant period, so that the stump was firmly and completely cicatrized. The cicatrix was firm, drawn to a centre, and firmly adherent to the subjacent portion of bone. The end of the metacarpal bone was quite perfect, and destitute of cartilage, but covered with a dense fibrous substance, closely incorporated with the skin and tendons. The extensor tendon was continued into this dense mass, whilst the two flexor tendons, forming together one common fibrous cord, passed to the palmar surface of the same mass. The lumbricalis and interossei muscles were small, but were distinct, and connected slightly with the end of the bone. The transverse ligament of the palm was remarkably strong and thick, and closely united with the end of the bone and the fibrous cord common to the two flexor tendons. The two nerves formed large round bulbs, adherent to the cicatrix, not being a gradual enlargement of the nerve, but presenting the appearance of two small globes added to nerves of usual measurement. The two arteries were so small as to be hardly visible.

It is remarkable how little the bones of the fingers in children seem to suffer in some cases, when the hand has passed between rollers of machinery, placed at so small a distance as to compress a thick sheet of paper. In these cases the muscles and skin may be torn to an extreme degree, and the nerves dissected out, whilst the bones appear round, and of their natural form, as if they had recovered their natural form, although necessarily the pressure to which they have been subjected must have been extreme, as is shewn by the condition of the muscles and nerves.

Amputation of the fore-arm low down near the wrist can seldom be done very rapidly, as the tendons do not divide readily, like muscles, under the knife. The stump does not generally heal by the first intention, but suppurates, and a very long period often elapses before complete cicatrization takes place. This difficulty

of healing appears to depend to a certain degree on the nature of the exposed tissues, which are almost entirely deficient in cellular structure or muscle, and consist of tendons, synovial sheaths, bones, and skin.

Amputation at the wrist-joint need not include the opening of the joint between the radius and ulna, and even when the quantity of parts left to cover the exposed joint is not very considerable, the stump sometimes granulates freely, and heals rapidly. The exposed ends of the bones granulate either with removal of the cartilage, or on the cartilaginous surface, and by their luxuriance present a remarkable contrast to the raw surface often seen on the surface of a stump, when amputation has been performed just above the wrist, through the radius and ulna. In amputating at the wrist-joint it is not always easy to get a good flap at the palmar side. After the lateral connexions of the joint are divided, and the joint opened from the dorsal surface, the long edge of the knife turns with difficulty in the joint, and the blade may even pass between the os pisiforme and os cuneiforme. The prominent head of the trapezium, and the projection of the os pisiforme, prevent the carrying forwards of the edge of the knife on the under surface of the wrist, whilst the space between the articular surfaces of the first row of carpal bones, and the ends of the radius and ulna, is too narrow to allow the ready turning of the blade. The effect of these two obstacles, unless care be taken, may be to reduce the palmar flap to a very small size. The chief mode of avoiding the difficulty is to divide the lateral parts of the joint very freely indeed, and thus to be able to turn the upper surface of the carpus right backwards, instead of in a direction only upwards and backwards.

The number of amputations of the leg and thigh performed annually in a large London hospital is very considerable, and sufficient for a student to form a very good idea of the relative chances of a good stump from the circular or flap operations respectively. There can be no doubt that a hospital surgeon, who is frequently required to amputate, may obtain a stump of the most perfect kind in either way, and specimens of stumps might be shewn without a single fault, from either form of amputation. But a student has to begin, and his hand cannot be practised at first, and he must

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look not to what may be produced by one who is always in practice, but to what gives the best general result, when every thing goes on well, as well as when matters do not proceed altogether favourably.

In the thigh and leg, after amputation, it not uncommonly happens that every thing looks well for a few days, but that then some matter forms, or the limb jerks, or is hot, or the skin gets just a little tight at one part over the bone. In these cases the flap operation succeeds better than the circular, for it rarely happens that the skin of the circular operation can be got well forward again after it has once begun to retract, or become tight, whilst the mass of muscle and soft parts of a flap can often be brought down again after they have retracted very considerably.

In the thigh, puncture of the artery, above its division, is readily avoided in the flap operation, and cannot well be done in the circular. In the leg, the artery may readily be punctured in passing the knife behind the limb, and wounded above its division; still this is no real objection to the flap operation below the knee, as the same accident may happen from the use of the catlin.

The rapidity of the flap operation, as compared with the circular, is some advantage, but the whole operation is not necessarily shorter, for the number of arteries to be tied in the former case is generally greater than in the latter.

During the few last years the double flap operation has been performed on a large number of patients at St. Bartholomew's Hospital, by Mr. Stanley, and with the best result. In many of these cases, at their termination, the full soft condition of the face of the stump, the complete depression of the bone in the line of union of the flaps, or beneath the front flap of the thigh, have been most marked, whilst the effects of inflammation, in rendering the stump tense, have been very much less than where the same accidents occurred after a circular operation.

Two limbs were removed above the knee by the circular operation, the deep muscles being divided higher up than the superficial, and separately from them; the stumps were good, but not better than those from the double flap, and not equal to the very best from that operation. The operation itself was long. Only three vessels required ligature in one of these cases.

When the patients are discharged from a hospital, one looks at the round full stump, and considers every degree of roundness, and of the soft parts perceptible in it, as a great gain; but yet when old soldiers, and men who have had their thighs cut off many years ago, come for some other ailments to the hospital, and one looks at their stumps, which have been made by great surgeons, which have done well, and served these patients capitally, their stumps are not always round and full. Indeed, the stump of the thigh-bone generally becomes prominent after some time, but so as the skin and soft parts are lax and free, and not adherent, the patient bears well on it, although the soft parts slope off from it. This looseness of parts, and especially this freedom from any adhesion to the bone of the cicatrix of the stump, seems to be one of the great advantages of the double flap operation on the thigh, inasmuch as the skin, during the healing of the parts, is well separated from the bone, and even if the flaps do subsequently shrink, the cellular substance and skin of the flap still remain loose and free to a certain degree.

The choice of the circular or flap operation can generally, but not always, be made. Mortification of the lower extremity, from injury to the main vessel of the limb, or the existence of malignant disease in the lower part of the femur, may prevent the parts being left low down, and thus render the circular operation preferable to that by double flaps.

The femoral artery is generally divided entirely in the back flap, and does not lie at the angle of junction of the front and back flaps. The division of the artery need not be oblique in any great degree, although the edges of the flap are sloped; and when the flaps are finished, not by an oblique cut, but by carrying the knife directly outwards, the division of the large vessels may be as transverse as in the circular operation:—A limb was removed by Mr. Stanley above the knee, for disease of the joint, by the double flap operation, the oblique cut being finished by cutting directly outwards. The man died in fourteen days from inflammation of the veins. In examining the stump, the artery, nerve, and vein, were found to be divided quite transversely.

When suppuration occurs in a stump, the artery and vein may be separated considerably from each other; and if from bleeding,

or other cause, it is necessary to look for a vessel, the discovery of the situation of the vein may be no guide to the artery :— A limb was removed above the knee for disease of the tibia; some bleeding occurred afterwards; but the man died on the eighteenth day, chiefly from suppuration of the stump and chronic disease of the lungs. An abscess extended from the stump up the thigh; the end of the vein lay close to the face of the stump, but the end of the artery was retracted an inch and a half higher up even than the end of the bone.

It is remarkable to how great a degree the soft parts may be drawn up from the stump, and yet gradually descend, so as ultimately to make a good stump :—A man's leg was removed by Mr. Stanley above the knee by the double flap operation. During the ten days after the operation the man had fever and considerable swelling of the thigh; the stump was exposed, and the bone prominent, whilst the skin was retracted and apparently fixed by solid œdema. The case seemed to promise very ill indeed, but as the inflammation lessened the skin gradually drew itself down over the face of the stump, and ultimately the parts healed, the bone being adherent to the centre of the stump in the hollow between the flaps, whilst the surrounding parts were becoming more full, and gradually forming a softer cushion over the part.

In looking at the ends of the femur which have been removed from the dead bodies of persons many years after amputation, bony spicula of a remarkable character are sometimes found. The shaft of the bone in these cases has evidently borne weight well, for it is full and round right down to its termination, whilst one spiculum of firm bone may be seen growing from the linea aspera, or one from each side of the outer and back part of the bone. These spicula are regular processes, and quite distinct from that irregular deposit which comes on some stumps, and extends at times to the interosseous ligament. The following may, perhaps, be the just explanation of their growth. When the femur is divided high up by amputation, the psoas-iliacus muscle carries the lower end of the upper portion of the bone forwards and upwards, causing an oblique position of the bone, which is most unfavourable for walking. This action of the psoas-iliacus can only be overcome

by the muscles at the back of the limb, namely, by the biceps, semitendinosus, and semimembranosus; and the addition of these small processes, these levers, as it were, is just the means which would increase the power of these muscles, and render the vertical position of the remaining portion of bone possible. It would, in short, enable these muscles to give that erect and solid position to the femur, which enables a man, with an amputated thigh supported on a wooden leg, to walk readily, and which is so strikingly contrasted with the condition of the limb of the patient shortly after amputation, or on the occurrence of a fracture in the upper third of the bone.

In the double flap amputation of the thigh above, and of the leg below the knee, the success of the operation appears to depend very much on procuring a good front flap. In the thigh, when every thing goes on quietly, the bone generally lies beneath the front flap; but when the stump inflames, or the parts retract, the end of the bone generally rests on the cicatrix between the two flaps. The bent knee, the tense condition of the extensor muscles, and the proximity of the knee-joint, all tend to limit the front flap in the thigh, but as a rule it seems desirable that this should be four inches long, and as broad and thick as it can be procured, for a difficulty will oftener arise in procuring it of sufficient size, than any inconvenience from its excess in that particular.

The interosseous ligament between the tibia and fibula requiring a separate division, exposes the arteries to the risk of a puncture, even in the lower third of the leg; the same accident may happen from the knife piercing the vessel in making the back flap, and the vessel so injured not bleeding at the time, may, by repeated hæmorrhage, assist in destroying the patient.

The fibula sometimes becomes loose after amputation:—A man was in the hospital for some ailment, his leg having been amputated a long time previously. The stump of the fibula was quite loose, and moved almost as if in a ball-and-socket joint.

The patient with an amputated leg, not resting on the face of the stump as in the thigh, is less sensible of any inconvenience on the face of the stump. It is, however, necessary that the line of union should not come forwards, or be in such a part as to lie

between the bone and the part of the wooden leg on which he rests. Thus in the flap amputation the simple fact of the back flap coming very far forwards may bring the union on the front edge of the tibia, and subject the patient to a sore on this part, of such severity, as to induce him to request a second amputation.

The condition of an artery divided in amputation appears to be less important than when the same vessel is tied in the substance of the limb on account of aneurism. Arteries with very considerable calcareous deposit in their coats often retain sufficient power to heal, although these same vessels might perhaps be hardly able to go through those alterations in diameter in relation to the circulation, which are required after the main vessel of the limb has been tied. The two following cases are instances of arteries so diseased occurring in the amputation of limbs of persons who were neither young nor of favourable habits for operation, yet both patients ultimately did quite well:—

1. In the summer of 1841, a man was under the care of Mr. Lawrence, with an ulcerated stump below the knee requiring amputation, and originally occurring from frost-bite, in North America. He was an old man; the arteries were very calcareous, and broke short off under the ligature; the stump, however, did well, though the restorative processes were slow.

2. A man, aged 58, was under the care of Mr. Lawrence, with acute inflammation of part of the foot and leg, with spots of mortification. His condition was very low, and for some time he might be described as living chiefly on gin, with porter, spirits, and beef-tea. The man was sinking, and in the hope of saving his life the leg was removed. The arteries were so calcareous that portions of them broke away under the ligature; they were, however, tied by enclosing some of the surrounding substance. The man got quite well: the ligatures separated at the usual time, and the stump slowly healed, with very little suppuration or inflammation.

Considering the severity of the operation, and extent of the injury done to an individual by the removal of a limb above the knee, the success of the amputations there is very great. The patients are often placed under bad circumstances for operation, and their

health very much reduced, yet death from failure, after the removal of a limb for disease, is very rare indeed.

There do not seem to be any appearances about a patient, or particular circumstances of health, which can suggest the greater or less probability of phlebitis occurring after amputation. The following circumstance was, however, noted as bearing on this point. In two cases of diseased joints, very considerable suppuration had occurred in the parts around the joints, in addition to the disease in its cavity; and in one of these cases the medulla, at the time of operation, was observed to be unusually vascular. In both these cases phlebitis occurred; and it might be a matter of consideration, how far the tendency to suppuration before operation, and to inflammation of the veins afterwards, might be dependent on one and the same cause.

Amongst the cases of diseased joints, one patient is mentioned in whom cerebral symptoms arose suddenly, to the complete relief, for the time, of the diseased joint*. The following case presents many similar features, and though actively treated, and that at an early period, terminated fatally :—

A boy, aged 15 years, was admitted, under Mr. Stanley, on Aug. 31, 1842, labouring under disease of the left ankle, accompanied with abscesses, and the general signs of ulceration of the joints. He was feeble, but not failing. Auscultation detected no affection of the chest, and he seemed to be only ill from the disease in the ankle, which appeared to have commenced five months previously, after injury, and to have progressed regularly since. The leg was removed on November 17. The ends of the tibia and fibula, as well as the upper surface of the astragalus, had lost their cartilage. The synovial membrane was soft and pulpy, and ulceration had removed half the diameter of the fibula at a point a little above the epiphysis.

Except some secondary hæmorrhage, the boy went on well for three or four weeks, and the stump granulated with a very copious discharge of thick healthy pus. It was found, however, necessary to keep him on a milk diet, for even broth produced some fever.

* Page 117.

About the middle of December, when the stump was cicatrizing, he began to complain of pain in his head, and fever. An issue was made in the arm, and he was ordered to take small quantities of mercury, by which his mouth was gradually made sore. Leeches were applied from time to time to the head, and other means were used, in reference to his general fever. These means had little effect: as the stump cicatrized the cerebral symptoms increased; the pain in the head became so severe as to make him call out; his memory failed, and delirium occurred occasionally at night.

He became gradually insensible, and died December 30th.

The dura mater appeared distended. The arachnoid covering the inferior part of the cerebellum, pons, and medulla oblongata, was thickened and opaque, whilst its veins were large and full. There was a considerable quantity of fluid at the base, and some turbid fluid in the pia mater. The brain was firm, and each ventricle contained about an ounce of fluid.

Works on surgical anatomy describe many modes of cutting out portions of the foot, but it is remarkable how rarely these operations seem to be required. In the cases of disease of the bones of the foot, and injuries where partial amputations might perhaps be performed, there is often just doubt enough, as to the sound condition of the tarsus, to prevent that certainty of success which the patient wishes to be assured of before any operation, and which the surgeon always desires, but most especially in any operation of an unusual character.

Amputation between the tarsal bones I have never seen performed. There is a cast in the Museum of St. Bartholomew's Hospital, made from a man, aged 22, in whom the tarsus had been accidentally cut off about eleven years previously by accident, apparently just in front of the os naviculare. The tendons of the tibialis anticus, and peronæus tertius, appeared to be inserted into the cicatrix, and the foot was pretty level, the point not being depressed. He could walk tolerably well, but the muscles of the leg were much wasted.

The removal of the great toe and its metatarsal bone is not a slight operation, even on a dead body; and when the parts are thickened and inflamed this operation is very long, and attended with great pain: the parts to be divided are very deep, require very

free exposure, and the turning out of the metatarsal from the cuneiform bone is attended with extreme suffering.

The amputation of the leg low down, just above the ankle, gives the advantage of a long straight limb, and seems to be attended with much less risk of a bad stump, than the partial amputation of the foot :—

In the spring of 1844, a man was in St. Bartholomew's Hospital, under the care of Mr. Stanley, with a diseased foot, the extent of which was so very doubtful, that the question was rather where to amputate the leg, than how much to remove from the foot itself. In the consultation as to the propriety of the measures to be adopted in this case, Mr. Lawrence mentioned the success which had attended a case where he had performed amputation low down near the ankle, for a severe injury of the foot, the remaining part of the leg being most useful, making a good stump, and enabling his patient to lead an active life, in which he constantly used his limb. Mr. Stanley amputated the limb, by a double flap operation, about four inches above the ankle-joint. The note at the end of the case is in the following words :—"The stump is good, soft, and bears weight well upon a short wooden leg, with which he walks so well that one could hardly tell that he was lame."

Ulceration occurring in a stump, which is formed by the separation of dead parts by ulceration after injury or amputation, is an evil of a very serious kind, not only on account of the extreme difficulty of healing the part, but because the part after healing is liable to become a sore on slight occasions. In the healthy skin the line of demarcation between the cutis and the subjacent tissue, however minutely the skin may be hollowed out by long processes of fatty tissue on its under surface, is clear and well marked. Every thing is distinct, and each part is free and loose, but in a sore stump the appearances are different, though generally of one kind, from whatever cause the stump may have been produced. The bones, muscles, nerves, and vessels, are generally free from fault; the skin over the bone is the seat of mischief. It is tight, adherent to the bone beneath; the surface is shining, or marked with small cicatrices, and on cutting it through, the thickness of cutis is very slight, and a dense tissue is reached before passing through any depth of skin. This tissue is not separated from

the diseased cutis by any very defined line, but it adheres closely to the surrounding parts, may even penetrate between the muscles, and instead of being an extensile, delicate structure, resembles that tough tissue which unites the tunica vaginalis to the bottom of the scrotum, or that diseased cellular texture often found lying under a carcinomatous breast. Here are three cases:—

A man applied with an ulcerated stump below the knee. The leg had been amputated three years previously, on account of a sore on the back and front part, the stump being formed almost entirely by a long posterior flap. The parts healed, but have been breaking out more or less ever since, and have completely disabled him from following his regular employment. The stump was now removed by Mr. Stanley above the knee, and examined. The tibia and fibula were not diminished in size, even at the lower extremity; they were both somewhat thickened, and the interosseous ligament slightly ossified. The stump was very short, the tibia being cut just below the attachment of the ligamentum patellæ; the tibialis anticus and extensor digitorum formed no part of the stump; the entire edge of the tibia adhered to the integuments, which were ulcerated in this line: the ulcer was only superficial, and did not go through the skin, being fixed on a firm tissue which extended between the muscles. The gastrocnemii were doubled over, and formed a thick layer, covering the back of the leg and stump up to this adherent line. This layer was two and a quarter inches thick over the ends of the bone, was not cellular, and consisted of yellow greasy muscle, the only red muscle being that which had its two attachments left, the popliteus. The posterior tibial nerve was well covered by muscle, slightly thickened, adherent to the cut surface of tibia, and carried forwards with the muscle. The end of the femur, the patella, and especially the tibia and fibula, were light and rather spongy. There was no ossification of the interosseous ligament, no bony spicula existed, but a ridge of spongy bone was found under the ulcerated line of union. The fibula and tibia had not remained parallel to each other, but the former had separated from the latter at its lower part. Over the tibia the bone was thinly covered, and a dense cicatrix of diseased tissue had formed, which healed with difficulty, and ulcerated on the slightest injury. The same effect occurred in the following case, though from a different cause: —

2. A limb had been lost by frost-bite, just below the knee, and required amputation on account of ulceration repeatedly occurring.

On examining the stump, the ulcerated part was close over the bone, and was connected with the nerves and remains of the impervious vessels. The posterior and anterior tibial nerves were quite different in appearance; one was quite thin and wasted, the other was irregular, enlarged, and somewhat bulbous.

In the following case the same diseased mass of tissue formed the irritable part of a stump remaining after injury to the foot. It differed, however, in one marked respect, from the stump of the leg which had been previously amputated. In that case the greasy muscles, and the porous bone, shewed the little use which the ailing part had been to the patient, and the gradual absorption and change of structure which had been going on. In the following case the bone had still been used to support weight, and its enlargement illustrated the chronic inflammatory change which had extended from the stump to it :—

3. A man was admitted, labouring under a painful sore on the end of the metatarsal bone of the great toe, which had existed unhealed during the two previous years, and had originally been caused by a waggon bruising the part.

The sore was so inconvenient, that the foot was removed by Mr. Stanley, above the ankle, it not being clear that the tarsus was sound.

The metatarsal bone of the great toe was covered on its distal extremity with a tough substance forming the sore; this substance being closely united to the end of the bone. The extreme end of the metatarsal bone of the great toe was so much enlarged, and surrounded by such a quantity of thickened tissue, that it formed a round mass as large as a walnut, pressing closely on the next toe. The rest of the toes and metatarsus were found, on close examination, to be healthy.

CHAPTER X.

AFFECTIONS AND INJURIES OF ARTERIES AND VEINS.

Dilatation of the common carotid artery. Rupture of the femoral artery, from a blow, unaccompanied by other injury. Aneurism of the femoral artery, from a wound, with peculiar auscultatory signs. Injuries of brachial, radial, ulnar, and posterior tibial arteries. Ecchymosis occurring spontaneously, also recurring without apparent cause. Course of the obturatrix artery, and point of origin of the arteria profunda femoris.

The two following cases of dilatation of the carotid artery are related on account of their somewhat close resemblance to aneurism, which they sufficiently resembled to render them a matter of anxiety, but from which they differed in so marked a degree as to render any immediate operative proceeding uncalled for. The dilatation occurred where some dilatation is generally found in old age, but in these cases it was chiefly on one side, and though occurring almost in the regular situation of dilatation, it occurred also in the common situation of aneurism :—

A thin delicate girl, aged 25, was admitted under Mr. Lawrence, labouring under a round swelling on the common carotid artery of the right side, at its point of division, of the size of a kidney bean, but round, and with the long axis parallel to the vessel. This swelling pulsates with the artery, and can be completely emptied by pressure, but fills immediately on the pressure being removed. It is doubtful whether any murmur is audible in it; there may perhaps be a very slight one indeed. The corresponding point of the left common carotid is also somewhat full.

Menstruation, and all the functions, are performed naturally. There is a murmur terminating the first sound of the heart, loudest towards the apex, and not very audible in the course of

the aorta. She is liable to pain in the head at times, and states that occasional attacks of dyspnœa, with violent palpitations in the tumor, occur, which alarm her considerably. The swelling is said to have begun eighteen months since, and to have gradually increased up to the present time : no particular treatment appears to have been adopted.

The swelling remained unaltered, and she went home in about a month.

In the following case a very similar swelling occurred near the same situation, but in a patient much more advanced in life :—

A woman, aged 63, was admitted under Mr. Lawrence, into St. Bartholomew's Hospital, labouring under a slight enlargement of the right lobe of the thyroid gland, by which the right common carotid artery was pushed out of its course, whilst at the same time it appeared to be dilated at a point situated a short distance below its division. This enlargement appeared to be a dilatation of the vessel, but was destitute of any peculiarity detectible by auscultation. The auscultatory signs indicated some unnatural enlargement of the heart ; there was however no unnatural murmur. This disease or affection appeared to have been observed about two years previously, and to have gradually increased since.

In the dissecting room, the common carotid artery, after injection, often bulges in old people at this spot, but is not an inconvenience, or even a subject of attention to the patient during life. In these cases the artery is simply dilated. In the following case, dilatation of the subclavian artery existed, of a kind very similar to that of the carotid in the above cases, but dissection showed hardly any change after death :—

A woman, of about 50, was admitted into the hospital, with an aneurism of the abdominal aorta, and an enlargement of the right subclavian artery. There was a distinct murmur in the abdominal aneurism, but so little in the subclavian dilatation, that all did not agree about its existence. The woman died from rupture of the abdominal aneurism. The subclavian artery, on being cut open, was hardly dilated or diseased in any marked degree.*

* It is perhaps right to add, that the artery was not submitted to a process of artificial dilatation.

The tough texture and elastic property of the arteries enables them to resist very severe shocks, so that they generally escape in injuries and fractures, unless pierced by the bone or lacerated with a large quantity of soft parts. The following case presents an instance of a severe injury to the limb of a boy, unattended by fracture, but accompanied by such marked symptoms of sudden failure, and such peculiar local changes in the limb, that there seemed to be little doubt that the femoral or popliteal artery had given way :—

A boy, five years old, was admitted under Mr. Skey, for an injury of his thigh. The pale anxious look, and utter prostration of strength, at once indicated that some most serious injury beyond fracture had occurred. The following was the condition of the limb.

The right thigh is considerably swelled, and of a dark purple colour at its lower part; this begins just above the knee, (not including this joint) and extends about two inches up the limb. The limb below this swelling is much colder than the opposite one, and of a paler colour. The pulsation of the popliteal, anterior and posterior tibial arteries, is imperceptible in this limb, but quite perceptible in the left limb; the pulsation in the right femoral artery stopping in the middle of the thigh. No bone is broken. About twelve or fifteen minutes since the boy was riding behind an omnibus in Gracechurch Street, the wheel came off, and the omnibus upset; the boy was thrown forward, and fell on his side, the body of the omnibus falling on the lower part of his thigh. He was pulled out and carried to a medical man immediately. The boy was even then very faint, and the swelling had already begun to form.

In a few minutes after admission the boy became so feeble and faint that he was obliged to take wine.

In two hours the boy became extremely faint; the swelling now extended down to the knee, and upper part of the leg, especially into the popliteal space; it also extended higher up the thigh.

In five hours, the whole thigh, from the upper third to the knee, and the leg from the knee to the ankle, became much swelled, and below the knee the limb was quite cold. The boy was now so faint as to be in immediate danger, and sometimes appeared to be already dying.

2nd day.—Limb as last night in size and temperature. Boy quiet and very faint. Pulse 130, and very feeble.

11 P.M.—Knee slightly warm.

4th day.—Delirious last night, but quiet and apparently more comfortable this morning. Pulse 130. Knee, leg, and ankle, warm. Foot very cold and blue. No pulse even now below the knee, and only perceptible to the middle of thigh.

6th day.—Toes and foot still quite cold; the ankle is hot, swelled, and painful.

12th day.—The toes, foot, ankle, and leg, are now quite warm; the ends of the toes rather blue. No pulsation in the vessels even now below the middle of the thigh. The skin of the leg is less tense; the swelling above the knee is also much less in size.

20th day.—The leg and foot are now quite warm; no pulsation below the middle of thigh. The thigh is much less in size; an opening has formed in the popliteal space, through which several ounces of pus are discharged daily. The boy sleeps moderately well, and takes his food.

4th month.—The boy still remains in bed, feeble and thin. The limb is bent at the knee, and fixed; the thigh and leg are thin; the opening on the popliteal space is open, but discharges very little. No pulsation can be detected in any vessel below the situation of the blow. The end of the great toe remains dark and dead, but adherent; the ends of the little and fourth toe, so far as the pulp and skin are concerned, are separated. The boy, although feeble and thin, does not seem to fail, and though very ill does not appear to be in danger.

The boy went home in the fifth month, and has often been at the hospital since. The limb remained bent at the knee, wasted in the leg, and quite useless, some suppuration occurring at times from the popliteal space.

The preceding case is illustrated somewhat by the following extract.* In this case, however, there was fracture with an external wound.

A man, 44 years of age, was knocked down by a waggon, the wheel of which went over his thigh, near the knee, and broke his

* Dr. Turnbull: Edinburgh Med. and Surg. Journal, vol. xxxix. p. 114.

femur, just above the condyles, making two small wounds on the inner and outer sides of the knee, which bled freely.

On the 2nd day when he was seen, the limb was cold, the man restless and feverish. On the 3rd day, the limb was cold and insensible, the foot and leg blue. Vesications formed on the limb, and he died on the 5th day after the injury.

The femoral artery and vein were found completely divided at the seat of the fracture.

The following case of wound of the femoral artery is related on account of the place in which the ligature was applied. The space between Poupart's ligament and the aneurism was very small, but yet a ligature was applied successfully, so far as the cure of the aneurism was concerned. There are other circumstances of interest in this case, connected with the mortification of the limb, and the peculiar auscultatory sounds :—

Thomas Norris, aged 35, admitted under Mr. Lawrence, June 24, 1841, labouring under a swelling over the right femoral artery, rather to its outer side, of the size of a fives-ball, situated a very short distance below the crural arch, accompanied with a bruit audible to the ear, and a thrill perceptible to the touch.

The bruit is loud, but not very rough, constituting a continuous murmur, with increased loudness at each pulse of the artery : it is audible through the parietes of the abdomen, in the course of the external iliac artery, and downwards in the limb, as far as the knee. In the opposite iliac no bruit is audible ; and over the aortic valves a slight bruit only is audible, smooth and very slight, accompanying the first sound. Pulse 80, full, soft. The pulsatile thrill is felt over the vein, aneurism, and parts round ; it is synchronous with the bruit in the aneurism, not separable from it, and felt as plainly over the sartorius, just on the outer side of the sac, as over the vein. There is no impediment to the venous circulation, no swelling of the veins, no perceptible enlargement of the artery above, and no difference in the pulsation of the vessels of the feet in the two limbs.

Thirteen weeks since, whilst carrying a knife in his pocket, he stooped, and caused the point to enter his thigh, just on the outer side of the femoral artery, the knife entering about half an inch : this was followed by immediate hæmorrhage to syncope : on

recovery from fainting the bleeding was less, and was checked by tying a handkerchief very forcibly round the limb: this was left on for two days, and when it was removed no swelling existed: the wound was also healed. During these two days he was kept quiet. He returned to his work in fourteen days, the limb apparently well, and free from swelling. The swelling was first perceived a fortnight or three weeks before his admission, of its present size. The appearance of the patient was healthy.

June 26th.—The artery was tied just below Poupart's ligament; the tumor almost completely subsided immediately, and became destitute of pulsation. The limb became cold, but recovered its warmth in a few hours, when covered with a blanket.

29th.—The swelling exists in a less degree than before the operation, but still with a slight thrill.

July 3d.—The patient is hot and feverish, with loss of sleep. Pulse 120—130, free from hardness, and feeble. On the front surface of the right leg, midway between the knee and ankle, a dark red and inflamed portion of skin, as large as a half-crown, and painful to the touch, has formed. The leg does not maintain its warmth without the use of hot water and a blanket.

From July 13th till July 26th, the patch on the leg extended, so as to be three or four inches long, black, and not defined by a very marked line; the leg was dusky and cold; a slough formed on the great toe, and between two of the other toes. The pulsation in the tibial artery was extremely feeble, and less than after the operation, in a few days after which it returned. The patient also became less feverish, but was extremely and increasingly feeble. In this condition of the patient, the clear state of the case was set before him—that a fair chance of life was afforded him by amputation, and probable death without; he cheerfully consented to undergo amputation, which was performed immediately, July 26. The patient neither moved nor spoke during the operation; the muscles were dark, and almost dry; the femoral artery only threw out a little blood, and the operation was hardly like the amputation of a living limb. The limb was removed by the circular operation above the knee.

The stump remained quiet for about two or three days, no union taking place; it then began to discharge a thin, bloody, fœtid

fluid, and to slough, more especially in the skin. During the fortnight succeeding the operation this sloughing extended gradually, so as to expose about half an inch of bone, as also a considerable portion of the muscles; after this the parts gradually separated, and a healthy granulating surface was exposed. The patient's condition during this period was so low, that his life was quite despaired of.

By about the 10th of August the wound might be said to present a healthy appearance, and the patient was improving considerably. The ligature of the operation on the artery remained fixed, and the swelling still presented the same pulsation and thrill, with a bruit as before the operation, only in a considerably less degree.

During the whole of this illness no symptoms of any affection of the veins existed; the fever did not appear to be accompanied by any severe rigors, but was characterised more by extreme irritability and weakness than any thing else. At one time he was so low and desponding, that he attempted to commit suicide by hanging himself. The ligature did not separate for at least six weeks after the operation; this appeared to depend on the smallness of the aperture in the skin, which healed over the artery, not allowing the ligature to pass out, although it was separated from the artery. He remained in the hospital till December 7th. During this period he completely recovered his health and strength. The protruding portion of bone was removed on the 30th of October, after which the stump healed well. The swelling in the aneurism still remained to a slight degree, being perceptible by slight fulness in that part, with the same peculiar thrill.

July 19, 1842, (one year after the operation): the man came to the hospital this day in good health. The stump is in good condition, quite healed, and useful. The aneurism is now completely removed, but the thrill, on applying the finger, is still very considerable, extending from one inch above Poupart's ligament to about two inches and a half below, being perceptible over the vein, artery, and all the solid parts immediately around. This thrill exactly resembles in character that produced in dilated veins, but is much more intense.

A loud blowing sound is audible near the situation of the old aneurism, increased on each pulsation of the artery; this murmur, though increased at those periods, is also continuous and uninterrupted, indistinctly audible down to near the apex of the stump, but very loud up to near the umbilicus in the course of the iliac vessels.

There are some circumstances of the greatest interest in this most obscure and difficult case.

The aneurism was so high up, that a very small portion of the artery lay between it and Poupart's ligament, yet the vessel was reached and effectually tied. The aneurism was completely removed, and when he returned at the end of a year no traces of it remained. Another point of interest in this case was the mortification of the limb, and its cause. So far as general appearances went, this man was a most favourable subject for the operation. He was only thirty-five years of age, the aneurism was from a wound, and not from disease; and the man's powers must have been good, for he survived a wounded femoral artery, an operation for aneurism, a mortification of the limb, and an amputation.

It is probable that the cause of all this consisted in some original injury to the vein, as well as to the artery, and that although the operation completely answered its object in curing the aneurism, that the injury to the vein not only induced the mortification by affecting the circulation, but also gave rise to the peculiarities of the swelling in the thigh, which remained even after the aneurism was completely removed. The knife entered on the outside of the artery, and passed inwards an inch and a half: this might have reached the vein after wounding the artery. The peculiar thrill, and the continuity of the murmur, both seemed to refer to a venous swelling, whilst the indistinct descent of the murmur and its distinct ascent up as far as the umbilicus, shewed that the murmur was in the vein, and propagated in the direction of its current. It was, however, still increased at the contraction of the heart, and therefore was connected in some way with the artery.

Taking all the circumstances of this case together, it would

appear most probable, that an aneurism was formed on the artery, and also a communication between the artery and vein by the original wound, and that whilst the former was removed by the operation, the latter still remained.

When the end of a metacarpal bone is removed in cutting off a finger, or when the thumb is amputated, there is a deep angle of the wound, which is often made with the point of the knife in turning it round. The vessel here sometimes stops bleeding soon after the operation, but it is very liable to burst out again, or it may continue to ooze, and put the patient's life in danger. The difficulty of tying the vessel some time after the operation is at times very great indeed. Even the radial artery sometimes soon stops bleeding, but it is hardly safe to leave it, without a ligature or very careful bandaging:—

A boy, about six years old, was cut on his hand by a knife being drawn between his thumb and forefinger. The wound went on well till fourteen days afterwards, when it suddenly burst out to such an extent, that the child was nearly dead when brought to the hospital. On admission the wound was compressed, and kept bandaged more or less for about a fortnight, when the boy was discharged with the part nearly healed.

In the following case an opening was accidentally made in the brachial artery in bleeding. Although the case did well for a certain time, yet an aneurism ultimately formed:—

William Williams, aged 20, admitted March 12, 1842, under Mr. Stanley, having received a puncture of the left brachial artery just before, in an attempt to bleed from the vena mediana basilica. The puncture was large and deep, the blood issued from it immediately very fast, and in two streams; one bright, the other darker. The hæmorrhage was stopped by bandaging the arm, which bandage was continued for about seven days. The opening, however, inflamed, and the bandage was on this account discontinued. On the 28th of March, a swelling formed in the wound, with pulsation, which slowly increased.

On April 1, this swelling bled very freely on the patient moving about; the brachial artery was therefore exposed by incision just above its division, and close to the puncture. The puncture was

oblique, and included about one-third of the circumference of the artery. The pulse had not varied much up to the period of the operation. Two ligatures were placed above, and one below the wound. In ten days all the three ligatures had separated.

May 15.—There is considerably less power in the pulsation of the left radial artery as compared with the right; the left forearm is weaker, and the skin is less sensible than the right. The wound is nearly healed; the brachial artery pulsates down to the seat of the ligature.

The two following cases are instances of wounds of the arteries of the arm followed by effusion of blood: these patients presented themselves several weeks after the injury. In the first case the wounded vessel was cut down upon, whilst in the second the vessel was tied above the swelling; the second case appearing to be a simple aneurism, but the first to be effusion of blood without the formation of a distinct sac :—

1. A man, about thirty, was admitted with a tense swelling of the middle of the forearm, situated over the ulnar artery, pulsating, apparently circumscribed, and having a distinct continuous murmur increased with the heart's pulsation. The man stated that he had pierced his arm with a knife about three weeks previous, and that the wound bled freely, but stopped, and soon healed. On returning, however, to his work, the swelling gradually formed, and had increased up to the present time.

When viewed externally the swelling appeared to be very circumscribed, and to resemble in most of its characters a true aneurism; so close, indeed, was this resemblance, that the propriety of tying the artery on the cardiac side of the swelling was suggested. Mr. Lawrence, however, considered that the circumscribed appearance was not dependent on any sac, but that the swelling should be rather regarded as a deep-seated effusion of blood, and that the only proper mode of treatment was to lay the swelling freely open, and tie the artery above and below the wound.

This opinion was acted on. The fascia and skin were divided, a lump of coagulum fell out, and the artery jetted out of the opening. A small cut, not completely dividing the vessel,

existed; the artery was tied above and below this cut, and the wound allowed to suppurate. No distinct cavity or aneurism was found. In about three weeks the patient was well.

2. A person was admitted labouring under a small aneurism of the radial artery, from a wound with a pair of scissars made six weeks previously. The wound had been plastered up, and the aneurism began to form one month since. It was now about as large as a kidney bean, and situated just where the pulse is felt. A ligature was applied above the aneurism. On the sixth day the swelling was firm, without fluctuation or pulsation; the radial artery, between the thumb and forefinger, had also ceased to pulsate. On the ninth day the aneurism became firm and solid.

In the extremities, when two large vessels run side by side, the communications are large and frequent. These communications are important in many ways, but they are to be particularly remembered in those cases where ligatures are applied for wounds, as it may happen that a branch may enter between the wound and the ligature, if the ligature is not applied close to the wound:—

A boy, ætat. 10 years, was admitted, under Mr. Stanley, into Pitcairn's ward, in the summer of 1838, labouring under a wound of the posterior tibial artery, from a bit of glass entering it near the ankle-joint. The artery was cut down upon and exposed; a small wound was found in it, but in addition, for a short distance above, the artery was found to be separated from the surrounding tissues; the ligature above was therefore applied, not close to the wound, but on that part of the artery which was connected to the surrounding tissues; one ligature being thus placed above, and another below the wound. When the tourniquet was removed, some little, but not material, oozing took place: the boy was then put to bed. In half an hour, however, the wound bled freely, and was opened. The blood flowed from the old orifice as freely as before the application of the ligature: a strong ligature was now placed close to the wound, on the bare part of the artery: the bleeding stopped, the boy got well gradually, and in a few weeks was discharged.

The points of interest here are, the situation of the ligature and

the hæmorrhage. The distance between the wound and the part of the artery not separated from the surrounding tissues was not so great as to render the chance of hæmorrhage probable, if the artery was tied at the juncture of the separated and adherent portions, whilst the condition of the artery close to the wound was such as to render it unsuitable for the application of the ligature. The hæmorrhage evidently depended on a communication of a more free nature than usual existing between the peroneal and the posterior tibial arteries, in the situation of the partially separated portion, and thus between the wound and the upper ligature.

Ecchymoses do not often happen spontaneously; they may, however, sometimes:—

A working man was admitted, under Mr. Vincent, who stated that as he was walking along, quite well, about a week before admission, he felt a slight pain on the inner side of his left elbow, arising without any cause or blow. On going home, he found the left arm ecchymosed very considerably on the back of the elbow, and along the back of the fore-arm. Under the employment of rest, this was considerably removed, and in about a month the swelling had subsided.

There is often great difficulty in getting rid of effused blood, but still when it is decidedly removed it seldom recurs. In the following case the ecchymosis recurred in so marked a manner, and at one spot, that it appeared to depend on the rupture of a considerable vein:—

A man, aged 35, was admitted, under Mr. Stanley, labouring under a swelling midway between the elbow and shoulder-joints, immediately over the vessels. The swelling was nearly round, moveable on its base from side to side, but not from above downwards, soft and elastic, without distinct fluctuation, and in capacity equal to about half a pint. The skin was quite moveable upon it, and free from ecchymosis, but a distinct cord-like hardness was perceptible below, and especially above the tumor, in the course of the vessels, but superficial to them.

Ten days since, whilst at work, he bruised his arm severely against a joist of wood, rubbing off the skin at the same time. This

injury was confined nearly to the situation of the present swelling. The arm became extremely ecchymosed, and swelled gradually from the wrist to the shoulder. This swelling, in about seven days, had subsided almost entirely: but about this time a swelling was perceived on the same spot, forming the present tumor, which has increased till admission, and thus reached its present size.

In about a fortnight the swelling subsided. The following points in reference to the anatomy of arteries are mentioned here in connexion with injuries of those vessels.

The femoral and the obturatrix arteries are perhaps more often connected with surgical proceedings than any other arteries, except those divided in amputations. To ascertain certain points connected with these vessels, accurate notes and measurements were made during the winter of 1843-4, in the dissecting room. The points desired to be ascertained were—

1. The exact point at which the sartorius reaches the femoral artery.
2. The point at which the arteria profunda femoris is given off.
3. The reasons which bring the obturatrix artery more or less in the line of incision in the operation for femoral hernia, when this vessel is given off from the epigastric artery.

The relations of the sartorius muscle to the femoral artery are important, not only on account of the difficulty which this muscle by its unusual size may add to the operation for aneurism, but also by the bad consequences which the opening of its sheath may lead to. In ten bodies the femoral artery was accurately examined, and the distance below the crural ring, at which the femoral artery began to be covered on its outer side by the upper edge of the sartorius muscles, was first examined, and then the point was found lower down, at which the lower edge of the muscle left the inner side of the artery. In this way the portion of the artery above the muscle, and the portion more or less covered by it, were ascertained. The following were the measurements:—

Sex.	Age.	Condition.	Distance below Crural Arch at which Sartorius reached Artery.	Portion of Artery covered by Sartorius.
M.	21	Thin	1½ Inch	1½ Inch.
M.	18	Muscular	2 do.	2¼ do.
M.	63	Muscular	2 do.	2 do.
M.	23	Thin	2 do.	2¼ do.
M.	23	Robust	2⅛ do.	1⅞ do.
M.	—	Muscular	2¼ do.	1 do.
M.	54	Muscular	2½ do.	1 do.
M.	64	Thin	3 do.	1½ do.
M.	—	Thin	3¼ do.	1 do.
F.	70	Thin	4½ do.	1¼ do.

This gives a distance varying from 1½ to 4½ inches, or an average of about 2½ inches, and allowing half an inch for the obliquity of the sartorius, would give about three inches as the distance on the inner side of the artery, from the crural arch to the point at which the artery is *completely* covered by the muscle. The point at which the profunda is given off varies very much, even in the two limbs of the same body. To ascertain its exact point of separation, the distance from the crural arch at which this vessel was given off from the femoral artery was measured in nineteen bodies, or thirty-eight femoral arteries. The point varied in these from half an inch to nearly 3 inches, but gave an average of about 1⅝ of an inch as the point of separation. In these thirty-eight cases the point of separation was between 1½ and 2 inches in twenty-two cases; at a distance exceeding this in nine cases, and at a distance less than this in seven cases. In this way the sartorius would reach the outer side of the femoral artery about an inch below the point at which the profunda is generally given off.

The following were the distances at which the profunda was given off below the crural arch in the cases just mentioned.

SEX.	AGE.	RIGHT.	LEFT.
F.	76	$1\frac{3}{4}$	$1\frac{3}{4}$
F.	14	$1\frac{3}{4}$	1
M.	66	$\frac{1}{2}$	$\frac{1}{2}$
F.	19	$2\frac{1}{4}$	2
F.	16	$1\frac{1}{2}$	2
F.	42	$1\frac{3}{4}$	2
M.	66	2	$1\frac{3}{4}$
M.	41	$1\frac{3}{4}$	$1\frac{3}{4}$
F.	38	$1\frac{1}{2}$	2
M.	20	2	$2\frac{1}{4}$
M.	68	1	$1\frac{1}{2}$
F.	50	$2\frac{1}{8}$	$1\frac{1}{2}$
M.	20?	$2\frac{1}{4}$	$2\frac{7}{8}$
M.	63	$2\frac{1}{2}$	2
M.	28	$1\frac{3}{4}$	$1\frac{1}{4}$
M.	47	$1\frac{1}{4}$	$1\frac{1}{2}$
M.	23?	$2\frac{1}{4}$	$2\frac{1}{4}$
F.	70?	$1\frac{3}{4}$	$1\frac{3}{4}$
—	—	3	$\frac{1}{2}$

The obturatrix artery, when not coming off from the internal iliac, arises generally from the epigastric, next in frequency from the external iliac, and least commonly from the femoral artery. The parts at the femoral ring are so near each other, and any change in position makes so great a difference, that a dry preparation of the obturatrix artery, as shewing its relation to Gimbernat's ligament, is of little value. The mere act of drying may just spoil the whole point of the preparation, and make an artery appear in great danger, which in a careful operation would probably not have been injured. In looking at the obturatrix artery, when arising from the epigastric in the recently dead body, three

conditions of it are found; one, the most common, when the obturatrix artery lies on the inner side of the vein; a second condition, the most rare, when the vessel lies quite behind Gimbernat's ligament; and a third condition, not very uncommon, when the artery lies about midway between the outer edge of the ligament and the inner side of the vein.

The variety of the obturatrix artery arising from the epigastric was measured in fourteen arteries, in reference to these points: 1. The point at which the epigastric came off from the external iliac artery. 2. The point at which the obturatrix artery came off from the epigastric. 3. The relation of the obturatrix artery, in each of these cases to the femoral vein and Gimbernat's ligament: in fact to the crural opening. The following are the results:—

1. Epigastric arose from Ext. Iliac half an inch above crural arch	Obturatrix Artery arose from Epigastric after half an inch of its course	The Obturatrix Artery ran over the inside of the External Iliac Vein.
2. Ditto	Ditto	The Obturatrix Artery ran close on the vein.
3. Ditto	Ditto	The Obturatrix Artery moderately close to the vein.
4. Epigastric arose from Ext. Iliac one half to three quarters of an inch above crural arch	Obturatrix arose from Epigastric after quarter of an inch of its course	The Obturatrix Artery ran just over the vein.

In these four cases the obturatrix artery did not arise from the epigastric till this was half an inch long, yet the former vessel ran down close on the inside of the external iliac vein; for the origin of the epigastric artery being about half an inch above the crural arch, the epigastric artery ran down this half inch to reach it, and gave off the obturatrix not half an inch higher up on the walls of the abdomen than the external iliac artery, but almost in contact with it.

In the ten following cases the epigastric artery arose on a line parallel to the crural arch.

1. Epigastric Artery arising at the line of Crural Arch	Obturatrix Artery arising from Epigastric, after a quarter of an inch of its course	Obturatrix Artery passing half way between the inner edge of the vein and outer edge of G. Ligament.
2. Ditto	Ditto after three-eighths of an inch of its course	Ditto passing close to vein.
3. Ditto	Ditto ditto	Ditto ditto
4. Ditto	Ditto ditto	Ditto ditto
5. Ditto	Ditto after half an inch of its course	Ditto passing not very close to vein.
6. Ditto	Ditto ditto	Ditto passing moderately near to vein.
7. Ditto	Ditto ditto	Ditto passing midway between the vein and G. Ligament.
8. Ditto	Ditto ditto	Ditto ditto
9. Ditto	Ditto after three-quarters of an inch of its course	Ditto passing close to the vein (tortuous).
10. Ditto	Ditto after one inch and one-tenth of an inch of its course	Ditto passing on the inner side of the crural opening.

In these cases, the epigastric artery, where the obturatrix artery arose from it, was much less in contact with the external iliac artery and vein than in the preceding cases, and had ascended a short way upwards on the abdominal muscles, and on the whole the obturatrix artery lay less close to the vein and more mesially than in the preceding cases. In only four cases was the obturatrix artery close to the vein, and in two moderately near it. In three cases the obturatrix artery lay between the vein and the ligament, and in one on the inner side of the crural opening.

CHAPTER XI.

AFFECTIONS OF THE URINARY AND GENITAL ORGANS.

Hydrocele; employment of wine, iodine, and sulphate of zinc, for its cure. Cure from incision and simple puncture. Hydroceles cured by injection, but recurring in two, six, and seven years. Hæmatocele apparently commencing as such. The fluid of hæmatocele. Hæmatocele cured by cold applications. Source of the blood in hæmatocele. Retention of urine in women, after fracture, and from retained menstrual secretion. Case of hæmaturia of an obscure nature. Bladder suddenly recovering its power in paraplegia. Urethra ulcerating during convalescence from fever. Malignant disease of the testis fatal in a few months in one case, and progressing slowly for seven years in another. Danger of incisions in the middle of the perineum. Unusual course of the artery of the bulb. Calculi lodged in the urethra. Stone drawn out of the bladder by a sound.

Hydroceles are injected, at St. Bartholomew's Hospital, with port wine, pure or dilute; a solution of sulphate of zinc, in the proportion of about ʒj. to a pint of water, and tinct. of iodine, diluted with water, in the proportion of ʒj. to ʒvj. Of all these methods the wine is most generally used; the cases in which it fails are very few, and the pain succeeding the operation is very slight. The pain which follows the use of the sulphate of zinc and iodine is occasionally very severe, lasts for some hours, and is hardly to be relieved by any means. When the tincture of iodine is employed, one drachm or more of the solution is left in the hydrocele.

Where the diluted wine and iodine both fail, the sulphate of zinc has succeeded. A simple incision with a lancet is sometimes successful:—A man had a hydrocele, which was injected with port wine. The fluid collected again; a free opening with a lancet was made by Mr. Lawrence, and the fluid evacuated. The wound gradually closed, and the fluid did not again collect, whilst the man was under observation.

A simple puncture is at times sufficient to cure a hydrocele:—An old man was admitted with a hydrocele, and stated that the present hydrocele had begun to collect nine weeks previously; he also mentioned that he had suffered from this hydrocele nine years previously, and that after it had been tapped then, he remained free from it for nine years, till its present recurrence. Simple tapping was successful in another case in the hospital, but suppuration occurred in the cavity of the hydrocele; the man had gonorrhœal discharge from the urethra, and perhaps this may have rendered the parts more irritable. Free exposure of the cavity of a hydrocele is not however always attended with mild inflammation:—Removal of a small portion of the scrotum had been practised for an out-patient, for the cure of hydrocele in a young unhealthy man. The scrotum inflamed considerably, and he was admitted under Mr. Vincent into the hospital. The suppuration was very extensive, and appeared to implicate the testicle. He however recovered his health, and went out, the testicle becoming reduced to its natural size, and the opening nearly healed.

Amongst the number of patients in whom hydroceles are injected and completely removed, very few return with a relapse of the complaint, whilst a cure from simple evacuation of the fluid appears to be very rare indeed. It does not seem to be very accurately made out in what the change produced by the injection of hydroceles consists; whether the influence of the injection on the lining of the hydrocele is such as to arrest the future secretion of the fluid, or whether the sides of the cavity generally become adherent. The following cases are instances of relapses at distant periods, after injection, and throw some light on the mode of cure:—

1. In the spring of 1842, a young man was admitted under Mr. Stanley, with hydrocele; this hydrocele had been injected four years previously, and after remaining cured for two years, again formed.

2. About the same time (1842), a man was admitted under Mr. Stanley, with hydrocele, which had been injected with wine in 1829, in 1835 with wine and water, and now again required injection.

General adhesion undoubtedly did not take place here, and as the swellings were smooth, it seemed most probable that even partial

union of the cavity of the hydrocele had not occurred. It would seem that in these cases the fluid was not again secreted, in consequence of a change effected on the membrane by the injection into the cavity of the hydrocele, in the same manner as the removal of the fluid is procured, and its recurrence prevented, in the hydroceles of children, by external stimulating applications to the skin.

Cases of hæmatocele engrafted on hydrocele are common, but it does not appear that hæmatocele has been observed to commence as such. The following case commenced as a simple hæmatocele, if the man gave a true account. He appeared to have no peculiar motive for deceit, and would probably have noticed a hydrocele if it had existed:—A man, aged 71, was admitted under Mr. Lawrence, for a swelling of the scrotum on the right side, red, painful, tense, opaque, fluctuating, and apparently pointing; the left side of the scrotum and left testicle were natural. He gave the following history:—Three weeks since he was well in every respect, especially about his private parts. One day, after passing his motions, he perceived a swelling on the right side of the scrotum, which was free from pain, and appeared to him to have come of itself. In two days the swelling increased rapidly, nearly to its present size, and its subsequent increase has taken place gradually. The swelling was opened, and thirty ounces of a bloody fluid, with coagula, were discharged. The right testicle appeared to be of the natural size, when examined before the man went out. After remaining about six weeks in the hospital, he left, well.

The bloody fluid of hæmatocele varies much; it may be coffee-coloured, with an oily fluid floating on the top, or a bloody fluid mixed with clots, or blood, or a substance like treacle. It does not appear that the nature of the fluid in these cases has much influence on the chance of its removal, or that a coagulating fluid will be absorbed sooner than one which remains fluid, or vice versâ, and even a fluid which remains as such, in the tunica vaginalis, may not have lost its coagulating property when let out.

In the following case, a hæmatocele, which probably contained fluid blood, was rapidly absorbed:—A man, under Mr. Lawrence's care, had a hydrocele, which after tapping filled with blood; this blood was let out in nine days, in a fluid form, with a trocar.

The hydrocele filled again. Cold lotions were applied, and in three weeks the scrotum was nearly of its natural size.

In the common forms of hæmatocele there are some circumstances which seem to indicate that the cutaneous veins of the scrotum are not the source of the blood which distends the tunica vaginalis. When a man violently squeezes his thighs together, or a great weight strikes the scrotum, the whole cellular tissue of the part may fill with blood, and a hydrocele be converted into a hæmatocele. In such a case the cutaneous veins are probably injured, but in the great majority of hæmatoceles, whether caused by blows, or by puncture for the cure of a hydrocele, the ecchymosis is very slight indeed. Although the ecchymosis is slight, the effusion of blood is most rapid, and a large hydrocele will sometimes fill with blood in a few hours. This want of ecchymosis, combined with rapid effusion, throws some doubt on the cutaneous veins being the cause of the effusion; and if we look at their size, and relations to the surrounding parts, the doubt is increased. Even in an inflamed scrotum these veins will not always bleed freely, and if they did bleed subcutaneously, the thin skin of the scrotum could not hide an ecchymosis, which forms here as readily as in the eyelids. If, however, these veins could bleed, would the blood run through the cellular tissue into the cavity of the tunica vaginalis through the opening made by the trocar? It is very doubtful if it would. When the tunica vaginalis slips off the canula, the wine, even with all the force of the syringe, runs chiefly into the cellular tissue, and hardly in any quantity into the tunica vaginalis; so that with all the danger of the sloughing of the scrotum, the patient may remain uncured of his hydrocele.

This is not a mere matter of curiosity. In addition to the importance of knowing the right cause of the bleeding, there is an opinion sometimes held, which is very questionable, and may bring blame on one by whom no fault has really been committed. It is said, "before tapping a hydrocele, let the surgeon be careful to find the veins of the scrotum, and not by puncturing them convert a hydrocele into a hæmatocele." This is right advice as far as it goes, but there is no doubt that the most careful man does sometimes convert a hydrocele into a hæmatocele, even with

all precaution, and apparently without puncturing the cutaneous veins.

Where does the blood really flow from in these cases? It flows rapidly, without ecchymosis of the scrotum, and often flows again and again, if it is repeatedly evacuated by the trocar. Three sets of vessels may pour out blood under these circumstances. The vascular lining of the tunica vaginalis has appeared on dissection to have been the source of the effused blood,* in addition to which the plexus of veins on the cord might readily pour out blood, as in the case of the spontaneous hæmatocele already related. In addition to these vessels inside the sac, there is another set of vessels, distant from the skin, large in size, close on the tunica vaginalis, quite out of sight, and more or less closely connected with the spermatic plexus of veins, which is very sparingly supplied with valves. If, in the dead body of a person labouring under hydrocele, an incision be made over the ring, and the hydrocele be pulled out of the scrotum, the cutaneous veins and skin are left, and the cord with the hydrocele is lifted up. But the hydrocele is not bare, but running on its surface, and almost in its coats, may often be seen veins of considerable size, not passing to the perineal veins and the cutaneous veins of the thigh, but connected more or less with the large veins of the cord itself. Here is a possible source of blood, which the eye would not detect, and which might pour out blood under those very circumstances, which are not clearly explained, if the blood be supposed to come from the cutaneous vessels of the scrotum alone.

The number of cases of retention of urine occurring in a large hospital in the course of the year is large, and some of these are very important. Cases of retention of urine, from mere nervous feelings, and those from real disease, resemble each other at times very closely:—A young woman was in the hospital under Mr. Lawrence's care, with obscure symptoms relating to the brain: she went out, but returned again. This second time her symptoms increased, and she died. Even on her second admission her real ailments were not very clear, and loss of power in voiding the water came on in such a manner as to appear hardly

* Edinburgh Med. and Surg. Journal, vol. xxxviii. p. 325.

to be the effect of real disease; yet she died of paralysis. Retention of urine sometimes occurs after fractures of the lower extremity, without any injury to the bladder, though not perhaps sufficiently often to be common. Retention under these circumstances is more common in men than women, yet it has been seen to occur in an old woman to such an extreme amount, within a few days after fracture of the neck of the thigh-bone, as to destroy life by the inflammation of the bladder and kidneys produced by it. The following case of retention of urine is remarkable in many respects, but especially for the unusual cause which gave rise to it:—

A healthy unmarried girl, aged seventeen, was sent up from the country to the hospital for inability to empty her bladder, and was admitted under Mr. Lawrence. Till the last few days she had followed her employment as a servant, and, till the present difficulty of passing her water occurred, she had considered herself as well. A catheter was introduced by the house-surgeon into the bladder with great difficulty. The size was only a No. 2 gum catheter, and it seemed to pass vertically upwards, close behind the os pubis, through a urethra four or five inches long. The chief impediment seemed to be the narrowing of the urethra by firm pressure from behind forwards. About one pint or more of high-coloured urine was thus drawn off, with great relief to the patient.

The immediate urgency of her ailments was thus relieved. The following circumstances were made out then and afterwards. The vagina was closed by a membrane at a point situated rather behind the orifice of the urethra, near the situation of the hymen. A firm, apparently solid tumor filled the hollow of the sacrum, and pressed the rectum so much backwards, that the finger could only be passed behind it with difficulty. She had never menstruated, but had never been troubled with much pain in the loins, or bearing down pains, and only occasionally suffered from headache.

She applied on the Friday: at seven o'clock on the following morning the nurse called the house-surgeon, to say the patient was flooding. The bed contained a quantity of blood, smelling like putrid fish. The blood was still running from the vagina,

but the patient was quite calm and comfortable, and shewed no signs of loss of blood. The tumor pressing on the rectum was now gone, the septum had burst, and the finger could be passed through it to a considerable distance without feeling the os uteri. She got quite well, and menstruated in one month dating from her admission into the hospital.

The first suggestion arising to the reader will probably be: Here was a plain case of collection of the menses, and it might have been tapped at once, and the bladder relieved. The fact is this: the woman came late in the day; the prominent symptoms were relieved, no danger existed, and the patient remained in the house for the surgical visit next day. The history of cases often comes from the patient little by little, and until the membrane burst, the house-surgeon, which was myself, had no very clear idea what the absolute cause of the retention was.

It is perhaps not quite clear how the retention was caused. Could blood accumulate between the membrane and os uteri to such an amount, and press on the surrounding parts with such force, as to close the urethra, elongate it, and also compress the rectum firmly against the sacrum? This may have been the case; but the firm tumor of the sacrum, the sudden attack of the retention, the elongation and alteration of direction in the urethra, are quite consonant with the supposition of the blood passing partly into the cavity of the uterus, and this organ becoming retroverted into the hollow of the sacrum, as in the early period of pregnancy.

It is remarkable, how rarely a case of pure hæmaturia, that is, one in which the only perceptible ailment is the existence of blood in the urine, occurs. The existence of a stone, or some affection of the bladder or kidneys, is generally made out, and the mere passage of blood becomes a symptom, instead of the disease. The circumstances of the following case were peculiar and of interest. No renal or other ailment could be clearly made out, although some growth from the bladder was suspected, and the case resolved itself into one of simple hæmaturia. No means succeeded in arresting the flow of blood, until a styptic was employed, and that gave immediate relief, and in so marked a manner, that its efficacy in this case could not well be doubted:—

A man, aged seventy-two, was admitted into St. Bartholomew's Hospital, under the care of Mr. Lawrence. A flabby, feeble man, with a completely blanched and somewhat yellow skin; labouring under pain in making water, with desire to pass it every one or two hours. There is no difficulty in making water, no retention at any time, no pain in the loins, no gravel, no piles, and no stoppage in emptying his bowels.

The urine is sp. gr. 1022, slightly acid, of a red colour, increased in quantity, containing a little mucus, forming a slight deposit, with some blood and salts; it is loaded with albumen. The blood separates but very slightly from the urine on standing. After the albumen has been separated by heat, the urine appears of its healthy colour. He has been sounded, but no stone was felt, no bleeding was produced, neither was the introduction of the catheter attended with much pain.

He describes himself as generally healthy, and a printer by trade. He first began to pass blood in his water about two years since: the blood continued to flow for one week, accompanied with the present symptoms. Under medical treatment the hæmorrhage subsided, but occurred again eighteen months since, for a week, as before. During the last three months it has flowed in the present manner, except for six weeks.

The bleeding has never been traced to any evident cause: the urine has sometimes been clear, and unmixed with blood, till just at the end of the evacuation of his bladder. There has never been any pain in the loins, neither has calculous matter of any kind been visible. Various remedies were tried one after another: gallic acid, alum, acetate of lead, sulphate of zinc, ergot of rye, and turpentine, produced hardly any decided change; but, on the whole, the man became more weak, whilst the urine remained as full of blood. The man's diet was good, being meat with some wine, but his appetite was bad.

He was admitted April the 9th, it was now May the 7th, and he was ordered Ruspini's styptic. The man gives the following account of its action:—

On the 7th he took three doses at 3, 6, and 9 P.M. respectively. On the 8th, at 9 A.M., his urine was bloody, but he mentioned to

the sister that he thought that he saw some change: at 12 noon, his urine was quite clear.

On May the 9th, the urine is sp. gr. 1015, acid, with alkaline mucus; becomes just cloudy on heat, without precipitate, and is free from blood. He still passes his water as often as before. He went out May 31, quite well as regarded the bleeding, although the styptic was not again employed.

Patients labouring under loss of sensation and motion in the lower extremities, suffer most from the two accompanying misfortunes,—sloughing of the integuments, and loss of power in the bladder. It is remarkable, however, in some of these cases, how suddenly the patient is sometimes relieved of one of these evils, the bladder recovering its power before the other symptoms improve in any marked manner; that improvement being accompanied by a sudden and marked change in the character of the urine:—

In the winter of 1841, an old man was admitted with partial paraplegia, and some dulness of mind. The house-surgeon drew off from his bladder, one morning, seventy ounces of urine at once. For some time his urine was drawn off twice daily; at last his urine became mixed with a copious white deposit, and puriform secretion, to a very considerable amount; all this taking place in a few days. At the same time the bladder so rapidly regained its power, and that in a rate quite disproportionate to his general improvement, that the use of the catheter was no longer necessary. In two other patients a similar improvement took place under similar circumstances; the bladder suddenly recovering its expellent power.

It would appear that examination of the prostate gland by the rectum may at times give a very deceptive result. In the following case it seemed that the distended bladder, pressing on the rectum, concealed the outline of the edge of the prostate, and prevented an accurate idea being formed how much of the swelling was owing to the bladder or prostate gland respectively:—

An old man, under the care of Mr. Lawrence, had severe retention of urine, for which his bladder was tapped above the os pubis. Whilst his bladder was distended, the prostate did not appear to project much into the rectum, neither was this

gland felt to be much enlarged. This man died two months afterwards. The prostate was found to be enlarged laterally, so as to form towards the rectum an even broad mass, as large as a small apple, whilst a conical mass connected with the two lobes projected into the bladder.

Again, a prostate may appear to be enlarged, and that enlargement may depend but partially on enlargement of the gland itself :— A middle-aged man was admitted under Mr. Stanley, with urinary fistula, and stricture of the urethra. On examination by the rectum, a swelling was found, which appeared to be enlargement of the prostate gland. This man died. On examining the prostate, an abscess of moderate size was found in the tissue round it, and the gland was only slightly enlarged. In addition to this, the bladder presented a very remarkable appearance. The bladder was firm and somewhat thickened. On its back part a cavity existed, capable of holding one and a half ounce; this cavity was formed in front by the muscular fibres of the bladder, and behind by peritoneum; the front of this cavity communicating freely with the cavity of the bladder, between the muscular fibres, forming a trellis-work in front. This cavity was lined by a shreddy membrane, like an abscess, forming a remarkable contrast to the smooth membrane of the bladder, the muscular fibres separating this cavity from the bladder being lined by the smooth mucous membrane in front, and by this foul membrane behind. It was evident that this abscess, on or in the walls of the bladder, had caused the swelling supposed to be an enlargement of the prostate.

The urethra sometimes gives way after fever in a very remarkable manner. The following cases occurred at distant periods, but presented these peculiar features in common :—

Two men had been ill of low fever, in 1837 and 1844 respectively, but were recovering, when they were seized with swelling of the private parts, and evident effusion of urine. They both died. In one of these cases the urethra was examined, but no stricture was visible; there was an opening in the membranous part of the urethra, with ragged dark margins, which might possibly have included it.

Again, in the autumn of 1846, a man was still remaining con-

valescent in the hospital after effusion of urine, which had occurred after fever, and had not been preceded by any severe stricture. Incisions had been freely made, and this man then was nearly well.

Malignant disease of the testicle may commence with very deceptive symptoms, and run a most rapid course. The particulars of the following case are related at length: they are those of a boy in whom the testicle swelled slowly after gonorrhœa, and induced him to apply for relief, after some time, at the hospital. The testicle was removed soon after admission, but the boy died within nine months of the commencement of his illness:—

A pale, thin, and slightly sallow boy, eighteen years of age, admitted July 23, 1843, under Mr. Lawrence, labouring under a swelling of the left side of the scrotum, which forms a long oval swelling, terminating roundly just outside the external inguinal ring, enlarging slowly as it descends, and of a somewhat square form. The swelling is quite opaque in all parts, about eight inches vertical by three and a half inches horizontal measurement at its lowest part, tense, with distinct fluctuation in the upper half, and indistinct fluctuation in the middle and front part of the swelling. The back part of the swelling is firm and hard, this fulness extending to the upper part of the swelling; the cord does not feel hard nor large, but the tumor passes so close to the ring that slight fulness might exist there without being very plain. He complains of heavy pain on the right side of the loins; no tumor can, however, be felt there.

Seven months since a gonorrhœal discharge from the urethra gradually ceased; and thus he was quite free from any affection of the genital organs. One month afterwards, that is, six months since, the scrotum began to swell, which swelling increased till five weeks since, when it reached its present size; this swelling commencing with some pain and heat, but at the lower part of the scrotum. Five weeks since he got medical advice, and was directed to lie in bed, and apply iodine to the part. Under this treatment the swelling is said by him to have diminished some little. During the last three weeks he has experienced pain in the loins, on the right side.

Aug. 1.—A trocar was passed into the swelling this day, when there escaped from the swelling about ℥j. of a moderately clear

fluid, and about ℥ij. of blood, in a stream, which soon stopped. This blood coagulated, leaving a reddish fluid, which presented nothing peculiar to the eye. The swelling thus was hardly altered in size.

On the following day the testicle was removed.

The tunica vaginalis contained a little bloody fluid, and some coagula. The swelling was one firm mass, occupying the whole cavity of the tunica vaginalis, and this, after the removal of the fluid on the 1st, formed the entire tumor, passing close up to the ring. The swelling was found to consist of a pink, very vascular mass, marked in one or two places with bits of yellow matter. These substances were elastic, not breaking down, or allowing any soft substance to separate, when scraped, but nearly as firm as a healthy testicle. On the back of the swelling a part of the tubular substance of the testicle was visible, covered with the tunica albuginea, and forming a part of the swelling from which the other bulged.

Aug. 12.—The boy is pale and sallow and still liable to odd feelings in his legs. The wound is not yet healed in its whole extent. He complains of pain in the left hip; the wound is healing favourably, the lower part completely cicatrized. In a few days he complained of pain in the hip and chest, which continued more or less till death. He died September 5th, having been delirious for a few days, passing blood in his motions; the skin also having given way over the sacrum.

On examination, the following appearances were found:—

Second rib, right side, broken close to the cartilage; walls thin, its interior filled for about half an inch with substance resembling jelly, of a brownish-red colour, without traces of cancelli. Some other ribs on the right side, and all on the left near the cartilages, were easily cut through, and bent without breaking, the gelatinous matter in them being here and there tinged with blood. The lumbar vertebræ were soft, with gelatinous deposits of the size of a pea here and there through the cancelli. The body of the fifth lumbar vertebra, with the exception of two thin plates of bone corresponding to its articulating surfaces, was completely destroyed, some soft jelly occupying its place. The sacrum, and upper part of the interior of both ossa innominata, were extensively softened;

their spaces being occupied by gelatinous matter. Both the sacro-iliac joints were destroyed. The left hip-joint was filled with a dirty yellow-brown fluid, the cartilage entire, the head of the femur separating from the neck, which was soft, yielding under the finger; the trochanter firm and healthy. The head of the bone could be scooped out with the finger, leaving only the cartilage. The neck of the right femur was entire, but the posterior part soft, giving way on pressure with the finger. The lumbar glands were enlarged, forming a large mass as big as two fists in front of the spine, and in structure resembling the diseased testicle. Some lumps, of the size of horse-beans, accompanied the spermatic vessels, resembling enlarged absorbent glands; the vas deferens was natural; the thoracic and abdominal viscera healthy.

In the preceding case the whole disease apparently ran its course in nine months, the man considering himself well at the commencement of that period. Such, however, does not appear to be the common course of the disease, a longer period elapsing before the disease terminates fatally, although that period is not so long as in the following case, where disease had been gradually coming on for seven years. There were some suspicious circumstances about it, but none of a very decided character. The disease, however, was decided fungus hæmatodes:—

A man, aged 45, was admitted, under Mr. Stanley, labouring under a swelling of the left testicle to about twice its natural size, of an oval form, with an uneven surface, heavy feel, and hardly tender. It yielded, but did not fluctuate, and was soft at one part. The glands of the groin were healthy to the touch. This man had laboured under the venereal disease two or three times. The disease of the testicle began seven years previously without cause, and had increased slowly since.

Mercury produced no effect in any way on the swelling. The testicle was removed, and was found to consist of two distinct substances; an upper, forming a mass of true fungus hæmatodes, and a lower, of a brown, ochry-coloured, putty-like substance.

The long deep incisions of the perineum for the relief of effusion of urine are not generally attended with any considerable bleeding, the divided parts being often dead, and the quantity of blood contained in them small. The effusion is generally so situated that

the incisions are made to one side of the mesial line, and the urethra is reached, not from the surface, but deep down and far back from one of the lateral incisions. When the urethra is attempted to be reached directly and at once in the mesial line, and that from the skin rather than from the incisions already made, the danger of bleeding is just as great as where a deep mesial incision is made in the first stage of the operation for stone. It is not only the danger of wounding a regular or unusual branch of the artery of the bulb that is to be feared; the mere wound through the bulb itself dividing several small vessels may be attended in an old person with bleeding fatal in a few hours; and the attempts to reach the urethra in the mesial line are attended as a rule with much more bleeding than those from the side.

So far as the mere contraction of the urethra is concerned, cases of effusion of urine are not generally attended with so much difficulty as to make an attempt to divide the stricture in the incisions for relief to the effusion, a matter of extreme consequence. After the sloughs have separated, the stricture is often very manageable, and much more so than many other cases which appear to be less severe. The difficult cases of stricture are not as a rule those with effusion of urine, but they chiefly occur in men of sallow appearance, past the middle period of life, who have laboured for years under the disease, and have always been having a little done by one person after another, but have never made up their minds to consider themselves ill, and to make it their great object to get regularly well. Bad as an effusion of urine may be, and dangerous to life as it often is, it may be a much less serious ailment than a urinary fistula, which merely dribbles a few drops, but may still gradually destroy the patient's life.

The artery of the bulb may lie in such a position that it could not well escape in lithotomy, and may be of such a size as to bleed nearly as much as the pudic:—In a body brought for dissection, the pudic artery of each side divided opposite the tuber ischii into two branches—the continued trunk, and the artery of the bulb. The artery of the bulb ran forwards and inwards, and after passing near the outer edge of the front half of the sphincter ani, entered the back and outer part of the bulb.

After the operation for lithotrity, as well as from small calculi

passing spontaneously into the urethra, this canal is not unfrequently blocked up. The removal of these substances from the urethra is often performed by passing instruments down the canal; but sometimes an incision is required. However small the calculus may be, it always seems tightly fixed; the wound appears to be much deeper than a simple incision into the urethra might be expected to be, the tissue of the corpus spongiosum bleeds most freely, and by its elasticity keeps the wound closed during the operation, and prevents any good view of the bottom of the incision being obtained.

The following is an instance of retention of urine from a calculus concealed by a pihmosis, the retention of urine being considerable:—A little boy came to the hospital with retention of urine. He had a phimosis, and the catheter would not enter the urethra. The phimosis was divided, and a calculus was found to be stuck in the orifice of the urethra, blocking it up. This was removed, but still the boy could hardly make water. The house-surgeon introduced a catheter, and the water was drawn off, which the boy had not been able to void on account of the distended condition of the bladder, even when the stone was removed.

There are amongst surgical instruments, sounds with little bulbs at the end, which are rarely used, and perhaps justly. The following occurrence well illustrates the accidents to which they may give rise:—A little boy came one morning to the hospital with symptoms of stone, and was sounded by the house-surgeon with a bulbed sound. On withdrawing the sound, it came about as far as the scrotum, and then stopped. The bulb of the sound had hooked out the calculus in front of it. Mr. Stanley at his visit made an incision into the urethra, and the calculus was removed.

CHAPTER XII.

AFFECTIONS OF MOUTH AND TRACHEA.

Salivary calculus. Removal of tonsils. Abscess behind the pharynx. Cut throat. Nourishment by enemata after wounds of the throat. Cases of difficulty connected with the healing of the wound. Suffocation of adults and children from vomiting and foreign bodies in the trachea. Space between the cricoid cartilage and thyroid isthmus. Enlarged subclavian artery and bronchocele. Peculiar distribution of supra-scapular veins.

A WOMAN, about 30 years of age, applied at the hospital, under Mr. Stanley, with a large swelling under the tongue, which had been increasing for thirteen years. One tooth had been drawn to make room for it. It was a calculus in the submaxillary duct, and was extracted by Mr. Stanley. The length was about an inch and a half; it consisted of phosphate with carbonate of lime, and weighed forty-three grains.

In removing the tonsils every person may avoid wounding the carotid artery, and perhaps the tonsillitic; but still the annals of surgery shew that those arteries have been wounded, and the operation of removing the tonsils with the hook and knife is an inconvenient and imperfect proceeding. The guillotine of Dr. Warren, of Boston, is often used at St. Bartholomew's Hospital, and with the most perfect success. With care it is conveniently applied, and, whilst it does not cut the parts which are to be avoided, it has the great advantage of cutting off the parts projecting beyond the pillars of the fauces smoothly and completely.

Abscesses behind the pharynx are not very common. The fol-

lowing is an instance of this affection; it was accompanied with great inconvenience, and its external characters were rather those of an obscure tumor than an abscess. A deep puncture with a sheathed knife removed all doubt, and relieved the patient. The following are the notes of the case :—

A boy, 14 years of age, admitted under the care of Mr. Lawrence, well in all respects except an affection of the throat, with difficult respiration. The breathing is loud and stertorous, especially at night, when it is accompanied with spasms of the glottis threatening suffocation. The voice is weak and stridulous. Air enters both sides of the chest well and freely, and no tenderness exists on pressure of the larynx. A round firm elastic swelling exists in the pharynx, on the front of the spine, not extending quite up to the base of the skull, but reaching downwards beyond the line of sight; its measurement appears to be about an inch and a half across at the base, and its projection from the base to its apex about an inch, the most prominent part being opposite the opening of the glottis. The tongue, tonsils, and parts around, are apparently healthy. The cavity of the nose is free from any unnatural growth.

After remaining in four days, the tumor was punctured twice deeply, when about an ounce and a half of pus escaped with immediate relief. The opening healed in one or two days, and the boy went out well in about one week from admission.

This boy stated that the difficulty of breathing had existed during the last six weeks, and that it had increased gradually. His friends stated that about ten days before admission he had swallowed a pin; of the truth of which statement, as well as every thing connected with it, the boy was quite ignorant.

Of the great number of persons who attempt to destroy life by cutting the throat, very few comparatively die immediately, although a large number never ultimately recover. The wounds in some consist of a mere cut in the skin over the larynx, or in a long cutaneous incision from one mastoid muscle to the other; but in many the larynx or trachea are opened. The larynx in the neighbourhood of the glottis, and even the pharynx, are opened more commonly than the trachea low down, the incisions being directed

generally towards the thyroid cartilage. Wounds of the pharynx sound much more serious than wounds of the larynx; but when we remember that any incision of moderate depth above the upper chordæ vocales necessarily enters the pharynx, without implicating the larynx, it is plain that incisions of the larynx or pharynx depend much more on the situation than on the depth of the wound. The real danger of a wound of the pharynx consists in the exposure and consequent inflammation of, with effusion of fluid into, the parts around the larynx, and the difficulty in feeding the patient. Many patients with cut throat die in a few hours exhausted; others die in a day or two, from the fluid collecting in the air tubes, or from failure of their powers without any very marked local disease; and others live many weeks, and at last die from some peculiarity in the healing of the wound. A very little local disease will destroy a patient reduced by the loss of blood and his own unhappy mental condition.

When a person attempts to destroy himself, he may divide the jugular vein, but he very rarely wounds the carotid artery; when he tries to murder another person, the carotid artery may be readily wounded. Even in the common position of parts, the carotids are backwards, and deep in the neck; but with the chin elevated and the head thrown back, the carotid arteries are very backward:—In the summer of 1840, a man cut his wife's throat, and then his own: in the woman's neck one carotid artery was divided, but in his own the jugular vein alone suffered. The carotid often escapes very narrowly:—A man cut his throat very severely; the carotid was not opened, but its coats were just jagged in one spot, so that blood might be seen oozing from the notch when it was accurately sponged. The blood came only from the coats of the vessel. When a person cuts his throat, bleeding may be immediately fatal by suffocation:—A man was brought in dead, with a cut throat. The jugular vein was found divided, and a clot, by falling into the larynx, had choked him. Soon afterwards another man was admitted, with a very severe cut throat. Whilst the house-surgeon was clearing the coagula and tying the vessels, the man gasped, coughed, and seemed suffocated. The person assisting stuck his fingers im-

mediately into the glottis, and pulled out a large coagulum which had tumbled into it. This relieved the man, and he lived for a day or two.

There is a class of cases of suicide of the most awful description, where the patient studies beforehand the nature of the parts, and arranges his plan of self-destruction. The following is one of these, and presents some remarkable points :—

The house-surgeon was called up to see a man with a cut throat. He found a man seated on a bench in the ward, looking moderately easy and comfortable, with a little wound on the side of the neck, about half an inch long, and apparently through the skin. Suddenly the man seemed suffocated, fell, and died. This man had passed in a pen-knife, which had pierced a large vessel in the neck, and then run on into the trachea. The blood had suddenly flowed into the trachea, and then he died suffocated.

When the pharynx is opened, nourishment by enemata is not always attended with any good result. The following case, however, well illustrates the benefit at times attending their use :—

A man of about twenty years of age, was admitted under the care of Mr. Lawrence, with his pharynx opened and the glottis exposed. He was unable to articulate, and vomited frequently through the wound, for an hour and a half, fluid mixed with blood. On the second day he had an enema of milk. From the 2d to the 41st day he took daily, in three enemata collectively, two pints of broth made from rather more than one pound of beef. His hunger was always appeased by the enemata. When his bowels were confined some salt was added, which was sufficient to open them. Once some wine was added to the injection. On the 41st day the injections were omitted, and food was given by the bowels. On the 51st day the wound was nearly healed, and the man looked well, and in tolerably good condition; he could, however, only speak in a whisper.

The wound in cases of cut throat generally unites well, without sutures or any particular means being employed. Such, however, is not always the case. At times the skin above the wound unites by an irregular membrane, over the cut edge of cartilage, with the mucous membrane of the larynx, whilst the most promi-

nent part of the pomum Adami pushes the lower flap of skin down, so that a thick fold of skin lies across the cricoid cartilage, and the wound remains open. There is great difficulty in closing the wound in these cases. The parts bleed freely, and the blood runs into the larynx, whilst the space is at times limited very much in thin old people by the superior thyroid arteries, which run just below the wound, and are very near the skin.

When the wound implicates the trachea, this tube by its contraction may complicate the case very seriously:—An old woman divided the trachea in about two-thirds of its diameter, just below the cricoid cartilage, and was admitted under Mr. Stanley's care. In about six weeks the wound had nearly healed, but was still to a certain degree open; the opening now remaining was about the size of a fourpenny-piece, and allowed the air to pass in and out, but imperfectly. She was also troubled with a severe attack of bronchitis, which was accompanied with the expectoration of a very great quantity of watery fluid; this fluid clogged up the opening very much, and also passed up in large quantities from the mouth by coughing. After about a week's duration of the bronchitis, she died rather suddenly. The parts were examined.

The wound of the trachea was just below the cricoid cartilage. The part below the division was diminished to the diameter of a third or half an inch, by thickening of the mucous membrane lining the trachea, and by diminution of the calibre of the tube. This diminution of the diameter of the tube itself was rendered more serious by the contraction of the skin round the opening, which by overlapping it to a certain degree rendered it valvular.

Of all risks there are few more awful than those from foreign bodies in the trachea: many persons may live and recover, but some have one struggle and are dead:—

One evening a nurse ran in from the opposite ward across the passage, and called out that somebody was ill. The house-surgeon went directly, but the patient was dead immediately. A man with delirium tremens, and requiring restraint, had suddenly vomited, and not being able to move readily, the substance from the stomach had gone into the trachea.

The same accident may occur in another way:—A person has

both thighs broken, and is to a certain degree fixed, by the feet being fastened to the ends of the splints or bottom of the bed. If the patient suddenly wishes to vomit, he cannot turn, is taken unawares, and is at times suffocated directly. This accident has also happened when one leg only is confined.

These cases of suffocation from persons being confined by splints or straps are not very uncommon, if inquiry is made, not in books, but by what one hears from time to time, and certainly happen sufficiently often to induce every precaution being taken to guard against them, though they cannot perhaps always be avoided. They seem to happen in the following way: the patient is suddenly taken with the desire to vomit, and immediately attempts to raise himself up to eject the substance from his mouth. In the hurry of moving, and during the exertions to raise himself up, the patient takes an inspiration from necessity, and is immediately choked by the substance with which his mouth is still filled. It does not appear that the contents of the stomach pass direct, without any struggle, into the trachea, but that the accident occurs during the struggle.

Children are often suffocated by foreign bodies passing into the trachea, and suffer very differently in different cases, according as the substance is fluid or solid, and also according to the part where the substance sticks. If the substance be a fluid, the child often dies directly; if it be solid, and pass into the trachea, the child may either have every sign, general and auscultatory, of a foreign body in the air passages, or it may be little more than ailing and breathing heavily, and die slowly. If the foreign body sticks in the ventricle of the larynx, the child has no rest, till it dies, or till the substance passes either into the trachea or mouth.

It is sometimes discussed, what is to be done in these cases, and what is the probability of the foreign body being coughed up; but it is rarely clearly understood by the student, till he sees a case, what the risk is of waiting till this may happen. When the foreign body excites irritation, the risk is most fearful; the coughing child is struggling between life and death, and one of three things happens: first, the cough ceases but returns again,—this is most common; secondly, the child dies,—this is not un-

common; thirdly, the foreign body comes up at once, and this is but rare.

Dissection shows what a cough it is, for but a few minutes or hours are sufficient to produce extensive emphysema of both lungs.

A pill has been known to catch in the ventricle of the larynx, and the child to struggle for a few minutes and die; or, whilst taking some liquid food, to hiccup and die, or, to give a catch in its breath, and, coughing from time to time, to die in twenty hours. In the first case dissection has shown the pill to be in the larynx; in the second, some pap, and in the third, a bone to have passed into the trachea. The following case is given at length from its interest, as well as on account of the complete evidence of the stone existing:—

A robust little girl, four years of age, was admitted under Mr. Stanley's care, labouring under violent fits of cough, accompanied with great blueness of the skin, but no expectoration, except occasionally a few drops of blood. The fits of cough were so violent as to produce faintness, and one which occurred whilst she was waiting in the ward seemed to threaten life whilst it lasted. The child was quite free from fever, or any general uneasiness. Her mother stated, that three days since, whilst playing in a field, she was seized with a cough so violent as to attract the attention of the person walking with her. The child stated that she had swallowed a stone, and described it as a round "vinegar stone." The cough had recurred every day since in very severe paroxysms.

Auscultation: Left lung admits air every where without any unnatural sound, but the breathing is so loud as to indicate by itself a probability of stoppage to respiration in some other part. The right lung admits air only in a small part of the upper lobe; not the least air can be detected moving in the right lung beyond the first division of the bronchus, close to the bifurcation of the trachea. In the right bronchial tube a loud rhonchus is audible, loudest close to the trachea, in which situation a sound similar to that produced by the motion of some solid body was once heard immediately before a cough. Percussion elicits a good and equal sound from both sides of the chest.

4th day from accident.—The cough occurred less frequently, but still retained its peculiar character.

6th day.—The cough is very frequent. The rhonchus is now audible on both sides, but loudest on the right side and lower down. The quantity of air admitted into the right lung is now much increased. The child was now taken home by the parent, and brought to be looked at occasionally. No particular change took place till about the 9th day, when the child was seized with an attack of acute bronchitis and inflammatory fever. A loud rhonchus was audible equally on the two sides in the large tubes, the air entering the vesicular structure of both lungs equally, but with general sibilus. The chest was every where resonant on percussion. The peculiar cough and occasional paroxysms still continued. No remedies except some leeches to the chest were employed, in consequence of the obstinacy of the parent. The child became gradually more and more feeble, lost its sleep at night in consequence of the frequency of the cough, and sunk on the 19th day, apparently in a fit of coughing.

The chest was examined the following morning.

The heart on its right side was distended with dark blood, as well as the large vessels connected with it. The left lung was emphysematous over a considerable portion of its external surface, from general dilatation of the cells. The lower lobe of the right lung was solidified, with small depositions of pus in its substance; the remaining portion of the right lung was rather œdematous. The trachea and large bronchi were full of puriform mucus, and their mucous membrane was also considerably reddened. On cutting open the bifurcation of the trachea, a pebble, white and rounded, of an oblong shape, larger at its upper end, and of the size of a kidney bean, was found loose, and easily extracted.

The thyroid gland was of considerable size, but the isthmus connecting the two lobes lay one or two rings below the cricoid cartilage; the thymus gland, however, touched the lower edge of the thyroid gland with its cornua, leaving only a very small space in the mesial line of the anterior surface of the trachea exposed. The veins ramifying on the thymus and thyroid glands were also of

very considerable size, and communicated freely with the large trunks around. The large veins were in close approximation with the sides of the thyroid and thymus glands.

In this case auscultation shewed that the foreign body was at first situated in some place where the ingress of air into every part of the right lung, except just the apex, was prevented: this could only occur in the right bronchus, just below where the bronchus to the right lung is given off: (it was also in this situation that the stone was once heard to move.) The statement of the child was, that it was a round stone: this was rendered more probable by the examination of the chest: if the stone had been small or rough, if it had been a piece of wire or similar foreign body, one cannot conceive how a round tube like the bronchus could be so completely stopped up; for as the body would then not have corresponded in form with the cavity of the tube, a certain quantity of air would have passed by its sides into all parts of the lung, and respiration would have been audible to a certain degree in the middle and lower lobes. The mobility of the stone is also extremely important. On the third day auscultation shewed it to be situated in the right bronchus, but on the sixth air was admitted into both lungs equally, and the rhonchus produced was equally audible on both sides: these circumstances could only occur where the two bronchi were free. The stone was evidently not now in the right bronchus, but was moved from its previous situation, and could only be in the trachea, the calibre of which it did not fit tightly, as the quantity of air admitted into both lungs was considerable.

The following notes relating to the anatomy of the trachea, thyroid gland, and vessels of the neck, are placed here, on account of their connection with the subject of the preceding pages. The space between the lower edge of the cricoid cartilage and the upper edge of the isthmus of the thyroid gland, measures in general about a quarter of an inch, very rarely equals half an inch, and occasionally no free space at all is found. In some few cases an artery of small size runs along the lower edge of the cricoid cartilage, but one of considerable size, and which would bleed freely if divided, generally lies along the upper edge of the

isthmus. This vessel is a branch of the superior thyroid artery, and commonly anastomoses freely with the corresponding branch of the opposite side. The isthmus of the thyroid gland is not so firmly adherent to the trachea on its upper and lower edges as to prevent its being scraped either upwards or downwards for a short distance with the handle of the knife. There is thus a portion of the trachea above the thyroid gland sufficiently large in some cases to allow of that tube being opened without injury to any important part, attention being had to the vessels which run above and below this small space.

In some cases, in the adult, the trachea might well be opened here, and an operation performed, nearly as easy as laryngotomy, and without some of the difficulties of tracheotomy. Such a proceeding could not, however, be undertaken with certainty in all cases; the space, by its small size, might prevent it in some cases, whilst in others the presence of vessels, and a portion of the thyroid gland, render this operation just as difficult as tracheotomy. In one case out of every eight or ten the transverse portion of the thyroid gland lies across the trachea so high up that no space exists. When the space does exist, it is occasionally much reduced in size by a process of the thyroid gland extending upwards over the thyroid cartilage, accompanied by one or two veins, and an artery of moderate size. It is not very unusual to find a large branch of the superior thyroid artery running down vertically from the crico-thyroid membrane, over the cricoid cartilage, to the transverse portion of the gland, resembling somewhat the middle thyroid artery from below; whilst at other times the inferior thyroid veins ascend over the transverse portion of the thyroid gland, the crico-thyroid membrane, and even over part of the thyroid cartilage, to anastomose with the laryngeal and superior thyroid veins.

The following were the measurements of the space between the upper edge of the thyroid isthmus and the lower edge of the cricoid cartilage, in the bodies of seventeen persons, of ages varying from fourteen to seventy:—

No.	Sex.	Age.	Size of Space.
1	F.	14	¼ inch. Artery on upper edge of isthmus.
2	M.	20	⅛ to ¼ inch. Artery on upper edge of isthmus.
3	M.	20	¼ inch.
4	F.	22	None. Ascending isthmus of gland and levator muscle.
5	F.	38	⅛ to ¼ inch. Artery on upper edge of isthmus.
6	M.	40	⅜ inch.
7	M.	41	¼ inch. Artery on upper edge of isthmus.
8	M.	42	None. Artery on upper edge of isthmus and lower edge of cricoid cartilage.
9	M.	42	⅜ inch.
10	M.	50	None.
11	M.	60	⅛ inch. Large artery on crico-thyroid membrane, sending a central branch vertically down to the thyroid isthmus.
12	M.	63	¼ inch.
13	M.	66	½ inch. Artery on upper edge of isthmus.
14	M.	66	⅛ inch. Artery on upper edge of isthmus; ascending isthmus on right side.
15	M.	68	¼ inch.
16	M.	70	⅜ inch.
17	M.	—	⅜ inch. The ascending isthmus of the thyroid gland, with large veins, covered the space.

The subclavian artery has been found much larger on the side, corresponding to an enlarged lobe of the thyroid gland, this enlargement ceasing after the inferior thyroid artery was given off:— An old woman had a solid enlargement of the right lobe of the thyroid gland to about three times its natural size. The superior thyroid arteries on both sides were large and tortuous; the right inferior thyroid was, however, especially large, long, and tortuous. The arteria innominata was rather long, and perhaps of large size; the two subclavian arteries presented, however, a remarkable difference in size. The right subclavian artery, before giving off the inferior thyroid artery, was very considerably enlarged in diameter; this enlargement stopping abruptly, however, at the point of separation of the inferior thyroid, beyond which the right subclavian artery was of the same size as the left in the same part; the previous part of the latter being also of the natural size.

The sterno-mastoid muscles are not often divided: when such an operation is required, the following peculiarity of veins deserves attention, as a wound of these veins, large in themselves, and communicating with large venous trunks, might give rise to considerable bleeding:—In dissecting a body at St. Bartholomew's Hospital, the right and left supra-scapular veins were found to run close behind the clavicle, and each sent a large branch into the internal jugular vein whilst passing over it; the two veins then continued their course forwards behind the sterno-mastoid muscles to the mesial line, where they united above the upper piece of the sternum, being joined at the same time by a large branch from the anterior jugular vein.

MEDICAL SOCIETY

CHAPTER XIII.

ABSCESSES OF THE ABDOMEN, HAND, ETC.

Abscesses appearing on the walls of the abdomen and chest, and tumors which may be mistaken for them. Cases.—Suppuration on abdominal parietes after parturition. Case of abscess in iliac fossa, and recovery. Case of abscess, connected with the cæcum, dissecting out the cellular tissue of the loins. Case of abscess in the abdominal walls, communicating with both the digestive and urinary organs; patient surviving for seven months.

Suppuration in the hand. Degree of danger to life in some forms of inflamed hand at times great. Probability of affection of the joints or tendons. Peculiar fluctuation found in the arm. Delirium from matter amongst the muscles. Cases of inflammatory œdema of hand. Two cases of rapid mortification of the hand, occurring in persons labouring under gout, or obscure rheumatic pains. Mortification of the skin of the groin. Abscesses with ulcerated legs. Carbuncle running its own course.

Poisoning with mercurial precipitate.

Abscesses on the walls of the abdomen are not very rare, and are at times attended with great difficulty of diagnosis, even after the swelling has been opened and the matter evacuated. In a healthy person, and even in a dead body, it is at times very difficult to say, whether a swelling on the abdomen or chest is protruded from beneath the muscles, or situated entirely outside them; but when the parts are thickened and painful, the difficulty is still greater. The following cases illustrate this difficulty:—A man, ætat. 25, was admitted under Mr. Stanley, labouring under a fluctuating tumor over the upper part of the right rectus abdominis muscle,

of considerable size, and apparently situated in the parietes of the abdomen. An incision was made into the skin and cellular texture, with the evacuation of some pus, but in very small quantity as compared with the swelling. The wound remained open for fourteen days, when a globular hydatid of large size presented itself at the opening, which burst on being handled, and gave exit to a quantity of yellow fluid. The opening continued to discharge a yellow bilious fluid; there was no derangement of the health, or local affection of the abdomen, and the man went home cured of the tumor, and with the opening well cicatrized. This man had never been regularly ill or confined to bed, but had a yellow look, like a forgeman or gas-worker, so as to lead one to ask his occupation. The tumor had existed not less than nine months.

2. A man, aged 35, admitted under Mr. Lawrence, May 18, 1843, labouring under an abscess opening below Poupart's ligament on the right side, unattended by any pain on pressure of the back, nor accompanied by much discharge. He is thin and pale, but free from any jaundice. A schoolmaster by profession: has resided for a few years on the Continent, and is said to have been very dissolute in his mode of living. The abscess formed eight months since, and burst about three weeks before admission. Whilst in the hospital, and within about three days of admission, a swelling of the size of a walnut formed between the two recti muscles, just below the xiphoid cartilage, which increased to the size of a twenty-ounce bowl before death. This swelling fluctuated, had a visible pulsation without thrill or unnatural sound, was dull on percussion, and was accompanied with great pain on pressure. There was a loud murmur with the first sound at the base of the heart, which, however, did not extend to the tumor. This man died gradually, rather from general failure than hectic fever, on June the 8th: the abscess in the groin had discharged very little till a few days before his death.

June 8th, P. M.—An abscess was found on the recti muscles under the skin of the epigastrium, containing about thirty ounces of yellow pus; at the back of this abscess, close to the xiphoid cartilage, a fistulous passage went into an abscess, which, from a deficiency of a small part of the diaphragm, was formed partly by

the anterior mediastinum as well as by the tissue round the liver; this abscess entered the right lobe of the liver, which by old white adhesions was united to the neighbouring parts. The abscess in the liver was formed by a mass of dark green or black shreddy tissue, soaked with pus, destitute of blood or any organized appearance; this mass being of the size of a fist, surrounded by a well-defined line, and by tissue of the liver hardly differing from the characters of health. The part exactly resembled a black rotten sponge full of pus. On removing the liver pus ran out from its under and back part near the psoas muscle, into which muscle the abscess in the groin passed, covered by the colon, which bowel was adherent to the surrounding parts, and to the parts round the kidney, near which organ the abscess ceased to be traceable, and close to which the pus ran out. This abscess contained hardly any quantity of matter, was separated by healthy tissue from a healthy spine, and was surrounded by an unusual degree of thickening of the parts, differing in all these respects from a lumbar abscess of the common kind, whilst small granules of lymph were found in great quantity, both in the abscess in the parietes of the abdomen as well as that in the loins. The veins cut across in the abdomen appeared to be healthy. In the lungs, here and there, detached spots of inflammation, confined to particular lobules, were observable, in some of which infiltration of serum, whilst in others distinct purulent infiltration, had taken place. The abdominal viscera, on external examination, and the kidneys on section, appeared to be healthy, the parts on the whole appearing rather pale than otherwise.

3. A man applied one morning at the surgery with a small fluctuating swelling between the sixth and seventh ribs of the right side. It looked like a common abscess. The dresser opened it, and a considerable quantity of matter flowed, and also came in a jet, when the man coughed. The man had a diseased rib, and an abscess in his pleura, without any affection of the lung, except a diminished quantity of air in it: the opening remained fistulous, discharging a small quantity of matter and bone.

4. A pale feeble man was admitted with a tumor, partly fluctuating, and partly elastic, between the cartilages of the fifth and sixth right ribs. It looked and felt very like an abscess; but the man had

only one leg, and on examination stated that his knee had been removed for fungus hæmatodes four years previously. The tumor was left, of which this was part; the man had malignant disease of the lung, of which he died.

Women present themselves from time to time labouring under abscesses on the walls of the abdomen, occurring soon after parturition, and preceded by rigors and fever. Although these patients are very weak, and the parts much thickened, yet they generally do very well, and the abscess slowly heals, the disease being entirely external to the abdominal muscles; the matter evacuated from these abscesses being at times of a dark brown colour, and attended with a fæcal odour; yet there may not be any communication with the bowel.

The two following cases of suppuration connected with the abdominal cavity are related as examples the one of the success occasionally attending an early opening of an abscess in the iliac fossa, the other as shewing the great extent to which suppuration within the abdominal muscles, and attended with obscure symptoms, may spread and affect surrounding parts. In the first case suppuration occurred in the iliac fossa, apparently unconnected with any injury or internal disease; the matter was let out, and the man gradually recovered:—

1. A man, aged 47 years, of a pale, unhealthy appearance, was admitted, under the care of Mr. Lawrence, for a large painful swelling in the right inguinal region, accompanied with heat, some thinning of the skin, and considerable surrounding induration. Pressure above Poupart's ligament produced severe pain, and in the swelling itself there was indistinct deep fluctuation. The man was unable to sleep from pain, sweated profusely at night, and had a feeble frequent pulse. He had been an out-patient for some irregularity of the bowels, without any marked symptoms, till seven weeks previously, when he had a very severe shivering fit, since which time the swelling gradually formed.

Mr. Lawrence made an opening in the most prominent part of the swelling, from which twelve ounces of healthy pus were discharged. The man was much relieved by the opening made. The discharge of pus gradually ceased, and a thin watery fluid unmixed

with pus flowed, until the wound closed at the end of about a month. The man was discharged in about six weeks from admission, improved in health, and able to walk about well, using both legs equally.

The following case illustrates the course which suppuration within the abdominal muscles may take, and the extent to which it may spread; dissecting, in fact, the peritoneum off from the lateral, back, and front parts of the abdomen, as clearly as has been found to be the case after rupture of the ureter. It would seem that the suppuration was originally connected with ailments in the bowel; but from the character of the openings into the cæcum it appeared that these openings had formed from without inwards, from the abscess situated outside the cæcum opening into the bowel, as well as through the skin. The parts were examined most minutely, and for the description I am indebted to the kindness of Mr. Paget:—

2. A man was admitted into St. Bartholomew's Hospital, labouring under a certain degree of fever and great weakness, with occasional nausea, and a small frequent pulse. His bowels were open daily, the fæces solid, but mixed with more or less blood. The skin of the right groin was thin, red, swollen, and tender to the touch. The man stated that for several months he had experienced small discharges of blood from the intestines, but no material disturbance of their action. Three weeks before admission he first felt a pain in the right groin, which prevented his moving about, and was followed by swelling in that situation.

He gradually became worse, and a gurgling sensation could be felt in the groin. His scrotum became red, swelled, and hard, and on an opening being made into it, a quantity of pus, mixed with air, and smelling strongly of fæces, escaped. Fæces and pus were afterwards discharged from the opening in the scrotum, which also began to slough. The man rapidly sank, and died. On examination, the whole scrotum was found in a state of gangrene. On its right side was the opened cavity, full of fœtid pus, which was continued by a long sloughing passage beneath the skin in front of the inguinal canal, until it reached a point just above the internal ring, where it passed through the abdominal muscles into the main cavity of the abscess. This abscess was situated between

the fascia transversalis and peritoneum, extending from the middle line along the whole length of the rectus round the right side of the abdomen to the outer edge of the kidney, thus dissecting the surfaces of the rectus and transversalis muscles. The inner wall of the abscess formed by peritoneum, and raised from its attachments, was slightly adherent to the omentum and the mass of small intestines, which were entirely shut out from it by the peritoneum. In the bottom of this cavity, which was filled by a mixture of pus and fæcal fluid, the cæcum and first four inches of the colon were situated. In these portions of bowel were four large apertures, with flocculent edges, capable of admitting the forefinger. The adjacent mucous membrane was quite healthy, except in some small round spots, where it was very thin, as if a perforation would take place here also from without inwards; the muscular and cellular coats at these parts being completely destroyed.

In the case just related, the disease, though limited in one direction, extended far and wide in another, and destroyed life principally by the extensive suppuration which occurred. The following case illustrates the extent to which disease of the parts in the abdomen may proceed without destroying life at an early period, and how both the urinary and digestive apparatus may in the same person have a common external opening without fatal effusion occurring:—

A man, only 25 years of age, who had been at one time a medical student, was carried into the ward, under Mr. Lawrence's care, in a state of low fever. His features were hollow and shrunk, his tongue nearly dry, his pulse between 120 and 130, and his whole frame emaciated. The lower part of the abdomen, and especially the parts about the right iliac fossa, were very painful. The urine was voided naturally, and the bowels had been slightly open on the morning of admission. A large abscess was situated between the umbilicus and os pubis, marked on its most prominent part by two sloughs. At one of these sloughs the abscess burst soon after admission, giving exit to three pints of a yellow fluid, of an intensely fœtid, as well as fæcal odour, but not containing any solid matter.

The following was his history. Four weeks since he was jerked off an omnibus upon the back of a dray-horse, and believes that he

fell on his back. He went home, and remained quiet for a day, when he took a moderate dose of calomel and colocynth, followed by an ounce of Epsom salts. From this he was most violently purged, and bent double with pain. This purging ceased to a certain degree, but not entirely, till a week since. Three weeks since (one week from the accident) the abscess first began to form a swelling on the abdomen.

During the few days after admission this man lay in the lowest possible condition, and each day seemed to be his last; still he lived on, hardly sleeping at all, and vomiting nearly every thing which was given him. On the evening of the fifth day he was suddenly seized with intense pain in the abdomen, increased on pressure, and at times so severe that he thought himself to be dying. Some laudanum, and the application of twenty leeches to his abdomen, relieved him. On the following day (sixth) he took a drop of Croton oil, and had some copious evacuations, by which he was relieved, and vomited less frequently. On the eighth he took another drop, and now vomited less frequently, and took a small quantity of food. On the ninth day he was much easier, and in making water felt something give way in the wound. On lifting up the poultice he found fæcal matter issuing from the abscess, which on coughing ran out so freely that it covered the bed. He went on gaining strength, more or less fæcal matter being, however, discharged from the wound. Ever since about the tenth day from admission a urinous fluid had been discharged from the abscess together with the fæces. It was not clear how far this was real urine or not, till about the twentieth day, when the following circumstances removed the doubt:—

20th day.—His bladder had been irritable for some time, the urine being turbid, occasionally bloody, and containing at times so much solid matter as to constitute masses. On this day complete retention of urine occurred, which was relieved by the copious evacuation of urine through the wound into the bed, hardly any being discharged from the urethra. The fluids discharged from the wound and urethra had both the same smell, both were equally alkaline, and both contained large quantities of adhesive matter.

This man remained in the hospital till April (four months),

when he was removed to lodgings. He was now able to walk about, but still suffered from the discharge of fæces and urine from the abscess; the former once or twice a week, and the latter more or less daily.

He remained much the same till the middle of June, when he died at his lodgings rapidly in about six hours, having laboured under fever, with vomiting, and more or less retention of urine, for the few last days of his life: living thus about seven months from the original injury. No examination was made, his death being only accidentally known.

Of the great number of cases of severe inflammation of the hand, occurring in the working classes, and arising generally from injury, very few instances are met with in which suppuration does not occur. Although venesection and active general treatment, employed at an early period, seem to render the inflammation less severe, to limit the suppuration, as well as to render it manifest at a more early period, yet they very rarely entirely prevent it. The occurrence of severe inflammation of the parts near the tendons of the hand of a working man, at whatever period it is first seen, or in whatever way it is treated, will generally require the use of the knife.

Although the inflammation of the arm, and the accompanying fever, are very great in many of these cases, yet there is little to fear from its severity. At times, however, the inflammation of the hand consists, not in inflammation passing rapidly into deep suppuration, but in thickening of the cellular tissue beneath the skin with hardly any increase of blood, so that on an incision being made into it nothing but a greenish yellow firm texture is found, from which a small quantity of pus oozes. This altered tissue dies in mass, and the patient's fever is at all times of so low a character that life appears to be in constant danger.

The great point of interest in cases of inflamed hand is to save the joints and tendons, and some idea of the probable njury to these parts may generally be formed at an early period. It is remarkable how rarely in these cases the pus affects the wrist-joint, matter, even in great quantity, flowing freely under the annular ligament, without doing any harm to that part. The

joints between the phalanges suffer much more commonly than those between the metacarpus and phalanges, and of the two, that between the first and second phalanx more often than that between the second and third. Suppuration in the sheaths of the flexor tendons of the thumb and little finger is much more commonly followed by separation of the entire tendon, and matter running up the arm, than when of the 2nd, 3rd, and 4th fingers. When the abscess is opened at once, the tendons generally escape, but when the matter is not evacuated till late, and most especially if the stress of the disease has been in one finger, or accompanied from the first by an open wound, the tendon dies more or less. The tendons on the back of the hand are at times, by loss of the skin and cellular tissue, cleanly dissected out, and yet do not die, the parts slowly granulating, and a useful though somewhat stiff hand remaining.

When the matter forms in the hand, it frequently runs up the fore arm, and is let out in that part. At times, however, an œdematous condition of the arm, with fluctuation of so decided a character, is found, that an incision is made for matter in the fore-arm, even into the muscles, without the escape of any matter; the effused serum causes this fluctuation, and although no matter escapes from the arm, yet some of the blood from the wound of the arm will at times run down, and come out at the openings in the hand, immediately after the opening has been made. When matter forms among the muscles of the arm, disturbance of the nervous system, resembling the maniacal form of delirium tremens, may occur:—A middle-aged man, under Mr. Lawrence's care, in bad health, had an abscess among the muscles of the fore-arm, which was opened; the man seemed to be very nervous and frightened at the time. On the second evening after this he became very violent, walked about the ward raving, and saying that his arm was quite well. Some wine was given him on the following day; the arm was more swelled and inflamed, and afterwards suppurated deeply and freely. No recurrence of these symptoms took place, and he went out well.

In the cold weather of December and January, 1840-41, two men, aged nineteen and twenty respectively, were admitted under Mr. Lawrence's care, for swelling of the integuments, and subjacent

cellular tissue of one hand each, extending in one case only up to the wrist, and in the other to a certain degree up the fore-arm. In one case a small opening existed on the back of the hand, leading towards the wrist, but not decidedly into the joint. No very distinct cause could be found in either case to show clearly the nature of the affection. In one case the swelling had existed for four months, and had succeeded an attack of inflammation of the hand, for which an incision had been made.

In one case leeches were frequently applied to the part, and in the other small doses of hydr. c. cretâ, with occasional doses of aperient medicine, were given. The patients remained in the hospital about five weeks, but did not appear better. The health of one was not very good on admission, but the other appeared to be pretty well. A young delicate woman was in St. Bartholomew's Hospital soon afterwards, with a similar affection, but more confined to the wrist, which joint, however, appeared to be perfectly sound. Nothing seemed to do any decided good. She went out, and lived for some time in the suburbs of London, and was reported to have gradually got quite well, without any particular medicine or means being employed.

Mortification of the hand, except as a consequence of local injury, is an extremely rare affection; the feet and lower extremities mortify from fever, disease of the vessels, or other causes, but any loss of portions of the upper extremities by mortification is very rare indeed. The two following cases are related at length, not only on account of the rarity of the affection, but also as examples of a disease commencing in a mild and common manner, but terminating in the loss of the most useful part of the most important limb. In both cases mild rheumatism or gout preceded the affection, unmarked however by any severe symptom. In one case cold was applied, and in the other some liniment, to which the affection might perhaps have been attributed, but it is not clear that these applications had much to do in causing the affection, though perhaps they may have aided its progress:—

1. A man, aged 37, was admitted under Mr. Lawrence. He was of a pale, unhealthy appearance, and not very sober habits: had been liable to gout in the hands and feet for some years. These attacks came and went, without any particular event, till April 19,

1841, when the knee, ankle, and foot of the right leg, the left foot and left hand, became red, swelled, and painful. In the space of a week the extreme phalanx of the middle finger turned blue, and as the pain of the swelling became intense, he applied cold water continually, during a whole night, with relief to the pain. In the morning the blueness had extended to such a degree that he was afraid to continue the application of cold water. In a few days the palmar surface of the fingers became red, the pain completely ceased, and a fluid began to ooze from around the nails.

On the 19th of May (one month from the commencement of his illness), he was admitted into the hospital, with the four fingers of his left hand dead up to the metacarpus, and the two phalanges of the thumb in a similar condition; a line of separation having formed between the dead and living parts, especially on the dorsal aspect.

The man was placed on a nourishing diet, with tonic medicine. The phalanges of the finger and thumb, and the distal ends of the metacarpal bones, separated, and the man left the hospital about July 30th, with the wound healed, but his hand consisting only of a palm with a little bit of thumb. He has often been seen since, remaining in much the same condition, but has had another attack of mild gout in the feet, which however yielded to colchicum.

2. A healthy, but perhaps slightly feeble girl, of nineteen years of age, was admitted under Mr. Vincent. About the 1st of April, 1844, she felt a degree of pain and numbness in one foot, one knee, and one wrist, resembling rheumatism, for which ailments she was a patient at a charitable institution in her neighbourhood, and bought a bottle of liniment at a shop. This liniment she rubbed on her arm and hand. The hand she describes as being white and pale when she commenced to rub it, but that it gradually in three days became black and dead, and that the liniment rapidly made the hand raw. On April 19th she applied at St. Bartholomew's Hospital, with the thumb and fingers of the left hand dead up to the middle of the proximal phalanges, with a well-marked line of separation forming between the dead and living parts. The arm was warm and quite natural in every respect, but the radial and ulnar arteries, as well as the brachial artery, below its middle

could not be felt: the brachial artery was indistinct even in its upper part. There was no affection of the heart. Menstruation was quite regular, and the hand did not mortify at a menstrual period.

There was nothing particular about the appearance of the liniment, and the parts near the mortified part presented no marked unnatural appearance beyond staining of the skin.

At the end of two months and a half (June 11) from the commencement of her illness, the following note was made:—The dead ends of the fingers have been removed now for some time, and the parts are nearly healed. She has lately had considerable pain up the arm, unattended, however, by any redness or pain in the wound, or of the arm. The brachial artery cannot be felt; there is not, however, any distinct cord in its place.

The following case of severe mortification of the thigh was not clearly explicable, and the characters of the disease were quite distinct from those of ordinary sloughing phagedæna. The man ultimately recovered, but his life was at one time in danger:—

Isaac Erle, æt. 22, was admitted January 20, 1843, under Mr. Stanley, from Deptford, labouring under gonorrhœa præputii, with a band of redness about two inches in breadth running along the upper part of the left thigh, accompanied with swelling of the femoral glands a short way above this swelled and inflamed part.

The penis is swelled, with discharge from the orifice of the prepuce, which is affected with phimosis: the part on which the end of the prepuce rests is exactly the spot where the disease began. The orifice of the prepuce presents a foul superficial yellow ulcer. He is hot and feverish; the swelling of the thigh is very painful, and is said to have commenced four days since.

Some punctures were made with a lancet in the part, and afterwards fomented. On the evening of the 21st a small vesicle was perceived on the inner and upper part of the thigh, which was surrounded by inflamed skin, and accompanied by considerable swelling of the upper part of the thigh. On the following day, (22d) this vesicle had burst, and the cuticle lay broken and dry over a space about the size of a shilling; the junction of the cuticle to the cutis being marked by a blue line, resembling

ecchymosis, but evidently consisting of cutis altered in colour. During the 23d, the skin on this spot, as well as around the part, was converted into a yellow mass, quite dead, and connected to the surrounding integuments by a bluish-black line, which was continuous almost all round with the dead skin, but broken here and there between the blueish line and dead skin by an excavated line: this dead portion was about three inches long and two broad, lying parallel to the crural arch, but about two and a half inches lower down in the thigh. The thigh was swelled to nearly twice its diameter around the sore, red, hot, and full of a burning pain. On the 26th, the thigh, from the hip to the lower third, was swelled, hot, and extremely painful; the skin over a space of six inches long, and three broad, was dead, yellow, and surrounded by an irregular groove, which on its outer side was marked with brown spots of disorganized skin, and with a general black line extending into the surrounding skin; this line of demarcation giving exit to thin pus, not forming in any part a line of separation between sound and dead parts, but rather a broken line, on one side of which the parts are dead, and on the other dying. The absorbent glands did not appear in any evident manner to share in the disease.

Since admission the man has been hot and restless, with very little sleep; his pulse has been frequent, and variable in number, decidedly firm, but not hard in any positive manner in both arms, but only in one (left), on the 22d. His manner is that of a man under great nervous excitement from the first, with a broken, feeble voice, and tremulous motions of the limbs. These conditions are now extreme; his strength has completely failed, his pulse decidedly feeble, his tongue dry, brown and black, and his manner more hurried in all respects. At first some leeches were applied, and he took saline and aperient medicine; he now takes quinine, and wine and laudanum at times.

Jan. 27.—He is more easy, less haggard, less feverish, and refreshed by more sleep last night. The space formed by the slough is not larger, but has the appearance of being broader from the formation of a deep groove round the slough on the upper edge of the sore, and at its two extremities; the lower edge of the slough presents, however, a less defined line, and is still

extending slightly, the integuments being continuous with the slough here and there by a black line. The thigh is slightly less swelled, but much less red in extent and degree.

Jan. 28, 29, 30.—The man has a general better appearance, and sleeps more at night. His skin has become cooler, tongue cleaner, and more moist, and his pulse less frequent. The redness of the thigh has diminished, the slough has not extended, and has separated partially, shewing red granulations beneath. No suppuration has occurred, except in and near the line of separation.

Feb. 10.—The man has now assumed a healthy appearance, and has recovered a healthy condition of skin and circulation. The slough has separated, leaving a foul surface, with irregular healthy patches of granulations, and a few small sloughs round the sore. These spots, as well as the sore, have however assumed a healthy appearance, and the upper front third of the thigh is one granulating healthy sore, with the muscles and absorbent glands exposed. The chief treatment has consisted in the administration of nourishment, with wine and brandy, to which quinine has been added, in two-grain doses, two or three times in the day, and laudanum at night. The man retains an unusual fretful and irritable manner, but otherwise does not appear ill.

Feb. 14.—The man is less nervous and irritable. The sore has a healthy appearance, and is granulating. The brandy and opium are still continued in small quantities, with nutritious diet.

Feb. 28.—The sore has partially healed, and is quite healthy. The man is much less irritable, and now takes good diet, with some wine.

April 13.—The sore still remains partially unhealed, but is healthy. The man's health is very good. He now takes simply nourishing food.

May 24.—Gone home. He is fat, and the part is cicatrized, except in an extremely small line.

The reason of abscesses occurring in a particular spot is not always clear:—

Three men were admitted about the same time with ulcers or abscesses of the leg and toe, of mild and common characters. There was no clear affection of veins or absorbent glands, yet abscesses occurred in all these three cases, all about the same

spot, and all containing dark grumous matter, collected in the cellular tissue beneath the skin. All these abscesses were quite distant from any absorbent gland.

In No. 1, Abscesses occurred over the inner condyle, and in the middle of the thigh, as well as on the calf. The original disease was over the great toe.

In No. 2, Abscesses occurred over the tendons on the inside of the knee, and in the lower third of the thigh. The original disease was ulceration of the leg.

In No. 3, Abscesses occurred just below the tendons on the inside of the knee, and over the inner as well as the outer vastus. The original disease was an ulcer of leg. No suppuration occurred in any of the absorbent glands.

Carbuncles are so much relieved by division that it is not common to see the progress of one left to itself. The cavity left after the division of a carbuncle is considerable, but it is nothing compared with the dissection of the surrounding parts, which occurs when no division is practised:—

An old infirm Irishman was admitted under Mr. Lawrence, with two large carbuncles, one on the right side of the chest, and the other on the side of his neck. The carbuncle on the side was divided freely, and a moderate quantity of blood escaped, but the man became so feeble that it did not seem safe to divide the carbuncle in the neck. He was ordered six ounces of brandy daily, and three grains of quinine three times in the day. Under this plan the man got quite well. The carbuncle in the neck sloughed, both in the cellular tissue and skin, exposing the sterno-mastoid, trapezius, omo-hyoideus, and levator anguli scapulæ; whilst on the side the parts did little more than suppurate very freely, and no loss of skin occurred.

Cases of poisoning with mercurial precipitate are so rare, that the following case is recorded for that reason, although unconnected with the preceding cases:—

A woman, aged 19, took on Dec. 1st, 1840, three-halfpence worth of red precipitate, and three halfpence-worth of white precipitate, two hours before admission, mixed in rum and water. She felt no pain at the time: in twenty minutes she felt cold and

faint, so as to be unable to stand, and vomited; she felt now considerable pain in the stomach, and being found lying down, feeble and in pain, was brought to the hospital. The stomach-pump was used, and brought up an opaque fluid, with a few drops of blood. The stomach was well washed out till the water brought up was clear. On the following day there was considerable vomiting, pain in the stomach, and feeble pulse; these symptoms were relieved by leeches to the epigastrium, and saline medicines, with opium. She was convalescent Dec. 6th.

Another case of poisoning with mercurial precipitate was admitted soon afterwards; the patient, a female, recovered, but was severely salivated.

CHAPTER XIV.

MALIGNANT DISEASE.

Cysts in the breast, with cancerous base. Cancer of the axillary glands. Malignant tumors in the neck, commencing like enlarged glands. Carcinoma at the inner angle of the orbit. Unusual changes in the tongue.

A DECIDED cyst containing fluid, in the breast of a woman at the middle period of life, is a most suspicious thing. It may be a mere harmless inconvenience, or it may be a most incurable cancer:—

1. A woman, aged 47, was admitted, under Mr. Lawrence, with a round fluctuating swelling of one breast, unaccompanied by much pain, or any disease in the axilla, which had been growing for four or five years, and had commenced spontaneously.

The breast was removed, and the disease was found to consist of a cyst containing a clear fluid, the sac being lined by a smooth membrane, and a few round granules. Beneath this, and adherent to the pectoralis major, was a distinct mass of carcinomatous matter. The disease returned in the cicatrix, as well as in four or five spots near it.

2. A woman, aged 45, was admitted June 15, 1843, under Mr. Vincent, with a swelling of the breast, about five inches horizontal by two and a half vertical measurement, and one inch and a half deep, firm, but not hard, with a general round surface marked with sulci and round elevations. Not painful on moderate pres-

sure, but occasionally the seat of severe pain originating there. The nipple was not depressed; the parts around were neither thickened nor wasted. The tumor was not more adherent to the neighbouring parts than any two parts under the skin usually are. No decided alteration in the axilla in any respect.

She was a widow, had two children, and had been liable till two years ago to "a falling down of the womb." Two years since she first felt a small lump, which has increased and become painful, chiefly during the last year. She ceased to menstruate one year since. No decided treatment has been adopted.

The breast was removed June 28th, and found to consist of a large cavity, containing six ounces of an opaque white fluid, with a mass below of a decidedly cancerous nature. In some parts of the hard portion a yellow stringy substance was visible, mixed however with decided masses of carcinomatous matter, here and there rather soft and reddened. The parts beneath were firm and thickened, and did not appear to be free from disease. After the operation there was some bleeding; and during the few days after the operation the woman was in rather a low condition, which however passed off.

She died in the following October, her thigh having broken spontaneously about one week before death; the disease having also returned in the cicatrix. Cancerous disease of the left femur in its upper third, of the sternum and lungs, was found after death.

Carcinoma occurs at times in the axillary glands, in so marked a manner, as compared with the disease in the breast, that it would seem to have been the original disease:—

A woman, about 30 years of age, was admitted, under Mr. Stanley, in 1843-44, labouring under a deep excavated ulcer in the axilla passing up behind the vessels, surrounded by very great thickening and hard everted edges; the mammary gland itself being only affected partially at its lowest part. From the appearance of the parts, and especially from the deep excavation, it appeared most probable that the cancerous disease had commenced in the axilla, and had implicated the breast secondarily.

The woman was delicate, but otherwise healthy. She gradually

sank, her death being much hastened by copious arterial bleeding which occurred from the part.

On examination, thickening of the parts was found to extend up along the subclavian artery, so that it could be found with difficulty, and probably could not have been tied, if that operation had been required. The axillary artery and vein were also much pressed upon by the diseased glands. Several branches of the axillary artery were included in the indurated part, but no open mouth of any particular vessel could be seen. The mammary gland was affected with carcinoma on the side next the axilla; a very considerable part of the gland, however, being healthy.

Malignant growths form at times in the neck in a slow and quiet manner, like scrofulous enlargements of the glands, and resemble them so closely at an early period, that it is difficult to pronounce on the exact nature of a swelling so formed. These swellings are single, slow in progress, deeply seated, and quite loose for a long time, presenting characters which might thus belong either to an enlarged scrofulous gland, or to a malignant tumor:—

1. A man, about 25, applied at the hospital with a tumor like an enlarged gland, low down on one side of the neck. It was single, had come of itself, and the man appeared well, but nothing did it any good. He went into the country and returned, and was seen some time afterwards, dying. The swelling had grown to a large size, implicating the surrounding structures, and was evidently a malignant growth.

The following case was even more slow in progress, and apparently had suppurated partially, yet examination shewed it to be real encephaloid disease:—

2. A man, aged 38, admitted May 9, 1842, under Mr. Lawrence, with a firm growth, as large as a fist, round, hard, situated between the base of the skull and fifth cervical vertebra, and reaching from the right side of the spine to the side of the right sterno-thyroid muscle. The skin is quite adherent to it, whilst at its deeper part the tumor appears to be connected with the spine and œsophagus. The sterno-mastoid is either implicated in the tumor or wasted. No difficulty of swallowing or breathing exists. No disease of the glands on the opposite side of the neck in the

least degree. An opening exists in the tumor, which has been made with a lancet, and through which a foul fleshy mass protrudes. For three years he has had a small lump on the right side of the neck; about Christmas, 1841, the present swelling first began to form, and was doubtfully connected with the tumor. This was opened, and gave issue to some blood and matter of a yellow colour, and in considerable quantity.

Dec. 23rd.—The man died. The tumor was found to be soft and brainlike, implicating the spine. A few similar deposits were found in the lung.

The following cases are inserted to shew how long cancerous affection of the skin at the inner angle of the orbit may last without destroying life, as well as to shew the liability of the disease to return after removal:—

1. A man applied to Mr. Lawrence in June, 1844, labouring under carcinomatous ulceration of the skin, of the two eyelids of the left eye, and of the cheek, extending also into the cellular tissue of the orbit, and leaving the ball of the eye in the middle of the orbit rather shrunk, with an opaque cornea, but entire. This ulcer had existed for fourteen years, and though destroying the parts so extensively had not interfered much with the patient's health, for he was able to walk eight or ten miles daily when he chose, had a capital appetite, and seemed in no immediate danger. He appeared to be about sixty years of age. He had not found any particular application agree with it.

2. An old man was admitted into the hospital, labouring under carcinomatous ulceration of the inner canthus of the eye and neighbouring parts. The disease had commenced two years ago, and had been removed eighteen months previously with caustic in the country. The surgeon removing it was an eminent and well-known man, so that the removal was probably complete.

The following case illustrates the occurrence of malignant disease in a neighbouring part, after removal of the eye for an incurable growth of not very defined character, but having some of the characters of carcinoma:—

3. John Goodwyn, aged 60, admitted Jan. 5, 1843, under Mr. Vincent, now labouring under a large tumor over the right parotid

MANCHESTER MEDICAL

gland and cheek, elastic, threatening to burst at one part, destitute of fluctuation, and only soft and inflamed in one spot, commencing one year since. Two years since this man's eye was removed by Mr. Wormald for a small growth from the conjunctival and sclerotic coats at the inner angle of the orbit. The growth appeared to have begun in the conjunctiva, and had the appearance of carcinoma. The parts in the orbit are now collapsed, and free from disease. The man appears worn, and is hemiplegic as well as dull in intellect. He died about Jan. 15th.

The mass of disease in the cheek consisted of a red brainlike substance, including the skin and tissues beneath, the bone not being affected. The optic nerve was healthy, and spread out into the fat of the orbit. The brain wasted on one side, with great thickening of the membranes on the same side beneath an old injury to the skull, with fracture of the outer table. The heart contained in its walls a mass of the same morbid structure as was found in the cheek.

In the cases of cancer of the tongue this organ has been found affected, on one side, nearer the base than the apex, except in one instance, where the disease began with a sore inflamed spot on the left side of the frænum, and occupied one of the folds of the membrane between it and the sublingual gland. This was, however, decided carcinoma.

There is seldom much difficulty in distinguishing between the venereal affections of the tongue, and those produced by mercury, or the venereal disease; yet occasionally patients present themselves with a condition of tongue which is so unlike that commonly occurring in connection with the venereal disease, or that resulting occasionally from mercury, that it is a hard matter at first to say what the exact cause of it may be:—

A healthy-looking woman was admitted into St. Bartholomew's Hospital, labouring under an affection of the tongue, which she attributed to the employment of medicine for an attack of jaundice, which had occurred five weeks previously. The tongue was very painful and greatly swelled, the mouth being also partially filled by a constant flow of saliva; the tongue was ulcerated on nearly the whole of its upper surface, and was marked by the ulcerated impressions of the teeth of the upper and lower jaws along its sides,

The flow of saliva and ulceration of the tongue were the only two affections of the mouth, for the gums and cheeks presented the appearance of health. Under the employment of strong astringents this affection gradually yielded, but so slowly, that even after two months of treatment she could only articulate feebly, and was still obliged to sit with a spitting-pot before her during the day. From what could be made out of her history after leaving the hospital, the tongue became small, but did not heal; the woman dying in about three months from her first illness.

In the following case there was difficulty in saying what the real disease was:—

James Emblin, aged 61, was admitted into St. Bartholomew's Hospital, under Mr. Lawrence, feeble, and liable to asthma, which is said to have ceased since the tongue has become severely affected. The left side of the tongue, except a small part near the apex, is covered with a mass which rises out of its substance to the height of about one quarter of an inch, with round smooth edges, a superficially ulcerated surface, and some hardness, but not of an extreme character. There are a few small slightly ulcerated spots here and there on the tongue: the discharge does not appear to be copious or fœtid. There is no disease of any kind below the angle of the jaws.

Hatter by trade. For the last eighteen years he has been liable to slight soreness of the tongue. The tongue was never, however, sore in any severe degree till five months since, when the present lump began to grow, and has continued to do so till now, but more especially during the last nine weeks, in which period blood and matter have on one or two occasions been pressed out of the tongue, producing great diminution in the swelling. He went out much in the same state.

CHAPTER XV.

SYPHILIS.

THE EMPLOYMENT OF MERCURY IN SIMPLE AND INDURATED PRIMARY ULCERS.

In the following pages, to avoid difficulty from the use of particular terms, the words "syphilitic" and "venereal" are employed as these terms are used in common conversation in the wards, and thus, under the name of venereal affections, are included all those forms of disease which common consent has attributed to impure intercourse, and which are placed without hesitation in separate wards. These are divided into primary and secondary affections; the former including all the varieties of ulceration resulting from direct contagion, together with the affections of the absorbent glands and skin, caused by the local affection exclusively, whilst the latter includes all the affections arising in any part, or at any time, from that general unhealthy condition which is produced by primary disease. This arrangement includes gonorrhœal affections; these are, however, omitted altogether, chiefly for the reason that mercury and iodine are not the remedies by which these affections are generally treated.

Primary ulcers are divisible into three principal classes:—

1. Excoriations and simple ulcers, unattended by any peculiar characters.

2. Ulcers, accompanied by more or less defined surrounding induration.

3. Ulcers, spreading rapidly, and attended with rapid destruction of parts, including both that form in which the ulcerative process is most marked, as well as that in which the parts are removed by a more or less complete sloughing process, con-

stituting the two forms of phagedænic ulceration and sloughing phagedæna respectively.

Amongst the patients admitted into the syphilitic wards of St. Bartholomew's Hospital, the most common forms of disease are superficial ulcers and excoriations, and that form of sore in which the ulceration is of a more extensive and more serious nature than simple excoriation, but is unaccompanied by any decided hardness. Amongst these patients certain parts are more frequently affected than others. Amongst the men, the integuments, the inner surface of the prepuce, the corona glandis, and the orifice of the prepuce, more especially when the latter is at all contracted, are the common seat of these affections; whilst in women, the lining membrane of the labia and nymphæ, as well as the commissure at the edge of the orifice of the vulva, are most commonly affected. In one case, where the patient died after considerable discharge of blood from the vagina, ulcers of this kind were found to extend high up the vagina towards the os uteri. These forms of ulceration are mentioned without including those ulcers and excoriations which arise from acrid discharge, and similar sources, respect being had to those forms of disease alone in which the ulceration is the essential disease.

The patients apply, almost always, whilst the disease is in the ulcerating stage; occasionally, however, other ulcers of the same character are commencing, in the form of pustules, near the original disease.

The employment of medical means is directed to the ulcerated sore, including more or less in the same treatment that which is commencing. The general appearance of these sores is that of an ulcer, with an uneven spongy surface, of a brownish colour, surrounded by a sharp edge, and unaccompanied by any marked degree of hardness: there are, however, some peculiarities of appearance, which are connected with the locality of superficial sores. Thus, sores on the mucous membrane of the nymphæ are generally small and superficial; at the upper angle of the nymphæ and clitoris they are often distinguished by a remarkably foul surface; on the corona glandis, the number, circular form, and depth of the sores, are remarkable, and at the junction of the mucous membrane of the labium with the integument the sores are generally placed

on a hard button of skin, and are often matched by similar sores on corresponding parts of the edge of the opposite labium. It is also worthy of note, that a sore of a simple nature occurring at the lower end of one of the nymphæ, occasionally burrows very deep, and so completely loses all superficial characters as to form a regular well of pus, and to resemble the result of a sloughing sore in that part. The influence of mercurial treatment on these sores has been regularly and thoroughly tried, both by the internal and external employment of that medicine. The disease has also been left to cure itself, as well as treated according to the ordinary modes of common practice.

There can be no doubt that under the employment of simple medicines, and also by doing nothing at all, many of these sores heal well and completely; but such is by no means the invariable rule, and so frequently do superficial sores, carelessly treated or entirely neglected, last for an unusually long time, as compared with the period required for their cure under careful treatment, that some direct treatment is often beneficial, and sometimes absolutely necessary.

The next question is;—is the employment of mercury in these cases attended with any advantage which does not follow a simple but regular plan of treatment?

Superficial ulcers are often treated by the application of mild lotions of nitrate of silver or sulphate of zinc, great care being taken to keep the parts very clean, and to vary the local application according to the rapid or slow healing of the part. At the same time the general health of the patient is particularly attended to, and the diet increased or lowered in quality or quantity. The success of this plan is often complete, the cicatrization of the parts rapid, and the cure perfect; but yet this plan will not cure every superficial sore in a reasonably short time, and these obstinate cases are generally improved in a decided manner by the employment of mercury.

The use of mercury being attended in some cases with a degree of benefit which does not follow the employment of simple means, it is important to ascertain how the cases benefited by the simple plan of treatment proceed when mercury is employed instead of the simple plan. The point is, in fact, to ascertain whether, in a

certain number of superficial sores, to one half of which the mercurial treatment is employed, and to the other half the simple or non-mercurial plan, the cure will be most certain, most rapid, and most complete, where mercury is given, or where it is withheld? The answer to this question may be stated thus. Where the ulceration or excoriation is extremely slight, and often getting well of itself, the simplest of all means, namely cleanliness, is often all that is necessary; when the ulceration is decided, and so extensive as to form a distinct sore, the employment of mild mercurial applications to the part, with the exhibition of Plummer's pill, or blue pill, in small doses, is attended with the same success as the simple treatment, and with this great additional advantage, that fewer cases will be found to get into a slow languid condition, and to remain on hand; in fact, that the mercurial treatment cures a set of cases which the simple treatment hardly touches, or affects but slowly.

The employment of mercury in this mild manner, namely the local application of the black wash, and the administration of blue pill once or twice a day, and continued for some time, is generally sufficient for the mere healing of the sore. There are, however, a class of cases which require a more decided plan of treatment, which, though not regular indurated sores, are benefited by the treatment required for that form of disease. These cases are not very numerous, but occur from time to time, the indication for the employment of mercury not being clear from any peculiar appearance of the sore, but the propriety of such treatment being suggested by the slow progress and continuance of the unhealthy appearance of the part, under other plans of treatment. These cases require to be treated in the same manner as the indurated sore next to be noticed, under which head the employment of mercury in primary disease is more particularly described.

The form of ulceration just described includes the great mass of primary syphilitic ulcers; the indurated ulcer, however, is far from being rare, and although a week or a fortnight sometimes passes by without a fresh case of this kind being admitted, yet this form of sore may be seen sufficiently often to be very well known. These sores are met with in both sexes, and occasionally exist at the same time as simple sores.

Primary indurated ulcers are generally in the spreading stage on application being made for relief. At other times the hard cicatrix is the only remains of the primary affection, and amongst the working classes these seem to be the only two forms commonly seen, as any induration preceding ulceration is either not noticed by them, or not considered sufficiently important to require relief.

Primary indurated ulcers are often, but not necessarily, single; the accompanying pain is not generally severe, and the surrounding inflammation is but slight. The ulcer is more or less round, seated on and surrounded by a bed of hard lymph, which terminates at its circumference by a more or less abrupt step into the surrounding tissues; the edges of the sore are sharp, whilst the surface of the sore may be pale, or brown, or spotted with blood, or it may present a whitish pasty appearance, with shades of a brownish or green tint.

The induration remaining after cicatrization of the sore is met with in patients when the sores have recently healed, or have been cicatrized for some months, and differs in size according to the original induration. There are, however, certain appearances dependent on the tissue in which the induration is seated: thus on the skin about the perinæum, we find a firm hard mass, including the skin and subjacent cellular tissue: on those parts where the skin is thinner the induration is generally more flat and broad, whilst under the thin covering of the prepuce and nymphæ, the mass of lymph forms a round tubercle, like a flattened pea or bean, which, when the membrane is rolled over between the finger and thumb, shews its white colour through the tightened surface of the thin adherent skin or mucous membrane.

In appreciating the effects of mercury or iodine, it is necessary to consider the changes which the indurated sore undergoes, if left to itself, or treated on a simple plan. The following appears to be the most common result under these circumstances.

The indurations, which commence as such, sooner or later, from some cause, generally ulcerate, and are placed in the same condition as primary indurated ulcers; these undoubtedly will heal of themselves, but that process is tedious and slow, and when it does take place, is generally merely a partial cure, as the cicatrix

remains hard and indurated. Thus sores of this kind lightly treated will sometimes last for weeks and months in an ulcerated state, whilst the period from the first appearance of the sore to the removal of the induration is very long indeed. The induration, or hard cicatrix, remaining after the imperfect healing of the sore, is truly and essentially the same disease as the open ulcer, only in a less irksome form; its presence is inconvenient and painful, and from the slightest accidents it may become again ulcerated; its simple existence exposes the patient, not only to the risk, but also to the probable occurrence of syphilitic disease in a severe constitutional form.

In short, from observation of the patients themselves, from the instructions of those whose opinion is most valuable, and from the evidence of the writers of the largest experience, there can be no doubt that the primary indurated ulcer, treated without mercury, heals very slowly and imperfectly, and that the patient is by such treatment exposed to the chance of renewed ulceration in the same place, as well as to the probability of the occurrence of constitutional disease, not unfrequently even before the primary sore is healed.

The treatment best suited for this affection is the general and local employment of mercury, which will be here described; considering first its local, and then its general use.

It is important to consider, first, an objection which has been raised to the local application of mercury in the ulcerative stage of indurated sores; for if mercurial local applications are only attended with benefit after the ulcerative process has begun to decline, and their employment in the spreading stage is attended with an increase of ulceration, the benefit of their use is but small; for to stop a spreading disease is a point of great importance, but to assist in the cure of one which is spontaneously declining is no very great gain. The frequency with which local mercurial applications are made to primary indurated venereal sores, however, affords an opportunity of accurately estimating the value of local mercurial applications. When much surrounding inflammation exists, and the sore is surrounded by a considerable portion of inflamed skin, the general condition of the patient, as well as the condition of the part, indicate the propriety of the employment of

local bleeding by leeches, or the other means commonly applied to an inflamed part before the employment of local mercurial applications. When, again, the ulcer has existed for a long time, and is almost in a chronic state, the internal administration of mercury is generally necessary to place the sore in a healing condition; the local application of mercury, although beneficial, hardly appearing to be sufficient to alter the condition of the sore. But when the ulcer is running its usual course, is still unhealthy on its surface, and presents all the signs of progressive disease, the local application of mercury in certain forms is generally attended with the best results. So frequently, and with such decided benefit, has it been applied whilst the sore was still spreading, that it has appeared to be one of the most powerful means in correcting the unhealthy condition of the primary venereal ulcer with induration, and converting it into a healthy granulating sore; and notwithstanding the descriptions of the bad effects of local mercurial applications to ulcerating sores, opportunities occur from time to time in which one may observe the greatest benefit not unfrequently following their application.

The curative influence of mercury is sometimes put to the test in the following manner. Cases occur from time to time where doubtful venereal ulcers are treated with various local and general means, without any direct improvement: at last mercury is applied locally, when a foul yellow sore, with considerable accompanying pain, is soon converted into a healthy granulating surface, without any pain, and with every sign of healing.

In some cases of primary sores, lotions of alum, sulphate of zinc, or simple water, are frequently applied, whilst mercury is administered internally during the entire healing of the sore. In the majority of cases, however, when these simple forms are used, some change requires to be made in the local application, or in its strength, as the surface of the sore is liable to become pale, and the restorative processes slow. For these reasons, as well as on account of the benefit resulting from the application of the black wash, and the long period which it may be used without any change being required, black wash is a local application frequently and usefully employed.

The application of mercury in a fluid form to indurated ulcerat-

ing sores, appears to act more beneficially than when mercury is employed in the form of ointment; it is applied more easily and equably, and only needs occasional renewing. The black and yellow wash are both thus employed: whilst, however, the latter is generally applied to ulcerations of the integuments in secondary syphilitic affections, the former is generally applied to primary ulcerations of the genital organs and parts round. For these reasons the application of mercury to the primary sore, in the ulcerated stage, is best performed by employing that substance in solution, as in that form it comes into accurate contact with the diseased surface. When, however, the ulceration has healed, the employment of mercurial lotions is not attended with such decided benefit, on account of the entire condition of the skin over the indurated part.

The existence of an indurated cicatrix after the healing of a primary sore must always be a source of anxiety as long as it remains, inasmuch as it is as really a part of the disease as the ulcer was, and is also very liable to be followed by secondary symptoms. These symptoms are not always of the same kind, sometimes consisting of large semicircular ulcers on the trunk and limbs, whilst at other times the scaly eruption, with ulceration of the corners of the mouth and tonsils, as well as excoriation of the umbilicus, are met with. On these accounts it is advisable to remove the induration of a sore as completely and as soon as possible.

To indurations on the mucous membrane or integuments of the genital organs, after all important inflammation has subsided, the strong mercurial ointment may be applied with the greatest advantage. If a portion of the ointment be occasionally rubbed on the hard part, and a piece of leather covered with it be constantly applied, a decided diminution is sometimes observed to occur in the size of the part. When, however, the skin is thick, and the induration old, the assistance derived from the application of mercury in this manner is often very slight indeed, and without the internal use of mercury no change is effected in the part. The friction of the ointment sometimes causes inflammation and consequent suppuration in these indurations, which, though inconveniencing the patient for the time, assists materially in the

removal of the mass. The hard button remaining after the cicatrization of the sore, though generally reducible by the application of mercurial ointment to the part itself, at the same time that mercury is employed internally, is at times only completely removed after the lapse of a long period of time, and by the changes in the part itself exclusive of any medical means.

With regard to the internal employment of mercury, although the manner of its employment and the degree of effect to be produced on the system vary in the different cases, yet a marked influence on the constitution, as indicated most readily by the affection of the mucous membrane of the gums, is that effect which is desired to be produced. This inflammation of the gums and increased flow of saliva is most conveniently produced in from six to seven days, and by the internal employment of blue pill, when once established, is maintained at the same degree, or increased according as is necessary. To diminish it, however, below that degree to which it arrives in about two days from its commencement, is difficult, without removing it altogether. In the great majority of cases, the soreness of the mouth, with slight mercurial fœtor of the breath, and a coppery taste of the mouth, indicates the state of system generally accompanied with the healing of this kind of sore, and should be maintained until cicatrization has taken place.

With regard to the employment of mercury after cicatrization has occurred, the following seems to be the best rule. If on the healing of the sore the entire hardness is removed, the cicatrix perfect, the part restored to its natural condition exclusive of the mere scar, and the mercury has been attended with distinct signs of affecting the system, mercury appears to have done its duty, and to be no longer necessary.

Such complete cure on the cicatrization of the ulcer is not the most common case, more or less induration generally still remaining. If the induration is becoming soft, and is being removed, the employment of small quantities of mercury is still the best course of proceeding. If, however, the induration be still hard and large, it is best to get rid of it quickly, as it will be removed with much greater difficulty when it has existed for some time, and as the safety of the patient is endangered by its

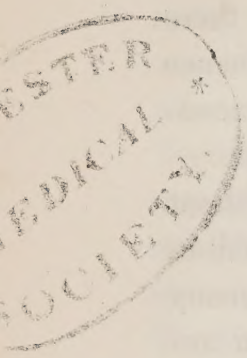
existence. If one set of patients had to be named, in whom a more complete course of secondary symptoms had occurred than any other, those in whom indurations have been left unattended to, after cicatrization of the primary sore, might well be pointed out. For the relief of those cases no means can be compared with mercury, and mercury employed internally and locally acts in the most beneficial manner. Under its use the recent indurations are often completely absorbed, and a healthy cicatrix established. The long period that these ulcerations sometimes last, as well as the frequency with which secondary symptoms occur after the ulceration has long remained healed, suggest the propriety of examining whether the quantity of mercury should not be increased in proportion to the age of the disease. If such is the case it is an unfortunate circumstance, as the patient, by the long period and quantity of disease, and sometimes by the treatment also, is reduced to a condition in which large quantities of mercury are far from advisable. However, neither the length of the disease nor its extent are any indications for the employment of large quantities of mercury, but they in general indicate the necessity of great attention to the general health whilst mercury is being employed. If proper precautions be taken, the effect produced by moderate quantities of mercury, provided an effect is really produced, is as beneficial as if large quantities had been used. In cases of old standing, where the primary and secondary symptoms exist together, where the disease is of long standing, and the patient's health bad, the great point appears to be, to employ mercury mildly for a considerable time, and to avoid any rapid and sudden use of it. Some of the best marked cases of the benefit of mercury which I have seen, have been cases of syphilitic disease, under the care of Mr. Lawrence, in which the most marked changes have been produced by the employment of small quantities of Hydrargyrum cum Cretâ, continued for a long period.

The convenience of blue pill is one of its great recommendations, and is in many cases the reason for its use being preferred to frictions. The employment of the corrosive sublimate is chiefly confined to secondary affections; the same may also be said of Plummer's pill.

In six syphilitic wards at St. Bartholomew's Hospital, the mercury is chiefly given in blue pill, whilst in the other three wards frictions are used to a considerable extent. The influence of both is marked, and each has its advantages and inconveniences.

The pill is simple, is not offensive, and does its duty without any assistance; the frictions require some trust being placed in the nurse to do them properly, are inconvenient, and, where many in the same ward are using them, make the room fœtid and unhealthy. Frictions, however, bring the patient under the influence of mercury in the most decided manner, and where such an effect is desirable are certainly the best means; they are also unattended by the colic and diarrhœa which occasionally accompany the internal exhibition of mercury. All things being borne in mind in favour of one method and the other, there seems to be no doubt that, when the decided influence of mercury is particularly required, the employment of frictions is most advisable, but that in the great majority of cases the convenience of the blue pill will always ensure it a very general use.

Such are the means used for the internal administration of mercury to produce a gradual action on the system, and which in the great majority of cases are sufficient. There are some cases, however, which, from the nature of the disease as well as the resistance of the patient to the influence of mercury, need an increase of the common dose, or require to be treated by the combination of one or two forms—as the blue pill, as well as by the application of frictions. When, however, a very rapid effect is desired, calomel with opium is generally used. The cases of the indurated sore, however, where this is required, are not very frequent; this form of medicine being chiefly used in the kind of primary ulcer next to be described.



CHAPTER XVI.

SYPHILIS.

EMPLOYMENT OF MERCURY IN PHAGEDÆNIC SORES; OF IODINE IN PRIMARY ULCERATION; AND OF MERCURY AND IODINE IN AFFECTIONS OF THE GLANDS, WARTS, AND CONDYLOMATA.

In the phagedænic ulcer the surrounding parts are inflamed to a considerable degree, with effusion of fluid into the subcutaneous tissue, producing in the penis paraphymosis. The degree of pain existing in the sore is generally intense, but in some hospital patients this pain passes unnoticed, and the part is said to be easy. The sore presents an irregular ragged everted edge in some parts, when the disease is spreading by ulceration, whilst in other parts the edge is not so distinctly marked, being continued into the adhesive substance covering the sore itself. The surface of the sore is covered with a firm layer of a white ash-coloured or dirty white substance. This substance is firmly adherent to the surface of the sore, cannot be wiped off like matter, and appears to be a secretion of the sore itself, mixed with the dead tissues resulting from the superficial mortification of the part. The rapidity with which this form of disease destroys the parts attacked by it is very great, and hence when patients present themselves with only slight loss of texture in the parts after disease of some weeks, it is probable in such cases that this form of disease has not existed during all that period, but that from neglect or other cause the sore has assumed this condition. This opinion, which is often rendered probable from the history, is shewn to be the fact at other times, where a sore previously marked by the characters of common

ulceration is seen to assume from various causes this unhealthy state. The majority of patients presenting this form of sore have laboured under some form of venereal ulceration from two to five weeks in a mild form; but the pain accompanying the commencement of this more serious form soon induces them to apply for relief. When much inflammation exists, leeches have been employed in the first instance to the inflamed part, but the chief reliance has been placed on the employment of mercury. In some cases, where the disease was not very well marked, opium and other lotions have been employed before the administration of mercury, with slight relief in general to the pain, but without any marked influence on the progress of the disease.

Under these circumstances the employment of mercury is attended with more advantage than any other plan of treatment. The employment of some form which produces its effects rapidly being desired, calomel is most commonly used in doses of two grains, with a third of a grain of opium, every six or eight hours, until some degree of salivation has been produced.*

In some of these cases the employment of blue pill, with the local application of mercury, is attended with some beneficial result; the effect produced by the direct application of mercury being well marked, and attended with immediate advantage. The mercurial effect on the constitution is not, however, produced so rapidly in these cases as under the employment of calomel; the employment of blue pill being more suited to those cases in which the disease runs a less rapid course.

The change in the appearance of the ulcer manifests itself at the same time as the mercury begins to affect the mouth; the pain then begins to cease, the white and unhealthy appearance of the sore not to extend, and in different parts of the sore, here and there, generally near the edge, red granulations appear, whilst a more puriform secretion takes the place of the watery fœtid fluid. This is followed in some cases by the separation of a well-marked slough, but more commonly by the gradual removal or

* In the Medical Gazette, vol. xxi. p. 616, Mr. Lawrence has described the importance of this plan of treatment. Cases of a similar kind, and benefited by the employment of mercury, have also been described by W. Darrach, M.D., Philadelphia, in the North American Medical and Surgical Journal, 1829, vol. vii. p. 274.

solution of the foul white surface, and the gradual conversion of the part into a healthy ulcer. The improvement of this form of phagedænic ulceration under the influence of mercury, in some of the cases under the care of Mr. Lawrence, has been as marked and decided as the improvement in acute syphilitic iritis under a similar employment of mercury; whilst under the employment of other means the sore had presented an extremely unfavourable appearance.

In the acute stage of this affection, whilst the ulcer is gradually spreading and destroying the parts, this plan of treatment has appeared to succeed better than any other; and the success of it in this form of disease has also been very frequently put to the test. When, however, the sore is reduced to a simple granulating surface, the continued employment of this active treatment is not necessary, the sore in general healing up under the mild employment of mercury. When the mercurial influence is produced, from some peculiarity of the patient, very rapidly, the influence of mercury is beneficial, but does not appear to be attended with that full benefit which accompanies its more gradual action. Although in the great majority of cases the employment of this plan is attended with such great success, yet cases occur from time to time in which, after the disease has yielded at first and got partially well, the subsequent progress becomes slow, or even ceases. The condition of the patients in whom this occurs is generally bad and unhealthy. Now although the disease in the worst cases may sometimes not advance, yet it does not recede so far as to assume the serious appearance which it presented when it first derived the advantage from the employment of mercury. In those cases where the disease subsequently becomes stationary, more benefit is derived from the hydriodate of potash, with sarsaparilla, and a nutritious diet, after the patient has been removed altogether from the mercurial atmosphere, and under the employment of these means the ulcers gradually heal up and cicatrize.

Under this plan of treatment this form of ulceration has appeared to heal sooner than any other. In some cases other plans have been tried before admission without success, whilst the disease has gone on from bad to worse. Thus, much time has been spent in useless attempts to arrest the disease, which has

yielded readily to mercury at last. The permanent success of this plan has appeared equal to that of the other modes of treatment of primary disease, and the cases have not returned again on hand for a recurrence of the primary disease.

The simply foul phagedænic ulcer is generally situated near the corona glandis, or root of the prepuce, and is often accompanied by a tight inflamed phimosis. The edges of the sore are in general free from swelling or œdema, but surrounded by considerable redness, whilst the surface of the sore at the bottom of these vertical sides is of a yellowish white or tawny colour. This form of sore resembles the ulcer last described to a certain degree, but the degree of acute inflammation accompanying it is greater, and often depends on some obvious cause, whilst the destruction of parts by sloughing of the glands is often much more rapid.

This sore occurs in two classes of patients: the first is that where the sore is accompanied by considerable surrounding inflammation, and with general fever; the head is painful, the pulse full and firm, the skin hot, and the tongue covered with a thick white fur. In such cases the condition of the sore appears to be connected with the general inflammatory fever, and to point to the relief of that condition as the indication for its appropriate treatment: and such, in fact, is the treatment attended with most benefit. In such cases application of leeches round the inflamed sore, and (if it exists) the removal of the paraphimosis by operation, exert a most favourable effect on the sore, whilst the exhibition of a free purgative to evacuate the bowels, followed up by small doses of a saline aperient, at frequent intervals, to continue a free discharge from the bowels, is attended with great benefit. General bleeding is not mentioned, and for the reason that it has very seldom been employed in these cases, and in the subsequent progress of the cases such appearances have not been seen as to indicate that its omission was to be at all regretted, the free abstraction of blood from the part sufficing, with the other treatment, to reduce the inflammatory condition, without any general abstraction of blood. The employment of purgatives in a sufficient dose to completely empty the alimentary canal, and the subsequent fluid discharges from the bowels, reduce the patient considerably; in addition to which, the application of leeches in considerable quan-

tity to these naturally vascular, and now highly inflamed parts, as well as the bleeding which occasionally occurs from the part itself, are, though in fact local abstraction of blood, not destitute of very considerable effect on the general constitution, nor far different from general bleeding. With regard to the second form, the characters of the ulcers are very similar; the degree of surrounding inflammation is, however, less, and the general character of the patient's condition is very different. The patient appears worn and haggard; the pulse, though inclined to be hard, is feeble; the degree of languor is great, and not unfrequently accompanied with a general feeling of aching or uneasiness in the limbs. The stress of the disease, in fact, is on the nervous, and not on the vascular system. Under these circumstances, although the local application of leeches may be attended with benefit, yet the main point of treatment consists in the employment of opium and wine. The employment of the pil. saponis c. opio, in five or ten grain doses at night, with more or less wine, and some nutritious food, with the local application of a solution of opium under a poultice, or with water-dressing to the sore, are attended with the most benefit to the general condition of the patient, as well as to the local disease.

Such appear to be the best modes of treatment during the acute stage of the ulcer: these temporary conditions are, however, remedied sooner or later, and the sore assumes those conditions in which it presents either the characters of a simple sore, or may even present some induration. The sore then comes under the treatment as above described for such cases, and ultimately heals.

Destruction of parts of the genital organs by sloughing is not very uncommon, and generally appears in the well-known form of sloughing phagedæna. Cases occasionally, however, occur, in which a spot of the vagina, or the mucous lining of the glans or prepuce, even in persons of tolerable health, but labouring under the venereal disease, dies without any very evident cause. This spot separating like the core of a large boil, leaves a healthy granulating surface beneath. This requires no particular treatment. In the well-marked cases of sloughing phagedæna the local application of nitric acid gives a degree of relief, and arrests the

disease in a more rapid and complete manner than any known means; and after the separation of the slough, the surface generally granulates well, and heals rapidly. Now and then the restorative processes are tardy after the sore has granulated for a few days; and although matters do not go back they are very slow in going forward. When the sore becomes tardy, the same treatment is required as in similar venereal sores which have been unaccompanied by any sloughing process.

Although no explanation of this fact can be well given in some of these cases, yet occasionally there appears to be a sufficient explanation of the benefit arising from the application of the nitric acid, as well as of the subsequent want of progress. Sloughing phagedæna, though commonly a clear and unmixed process, at times commences in a part already ulcerated, and the part presents a mixture of foul ulceration and sloughing, rather than simple sloughing phagedæna. In the mass of filth which covers a sloughing phagedænic sore, minute distinctions cannot readily be made, but ulceration immediately before the occurrence of the sloughing will sometimes be found to have occurred in those cases where the parts heal slowly after the separation of the slough, and where the disease, though brought within ordinary bounds by the application of nitric acid, requires for its complete cure the ordinary treatment of venereal disease.

The treatment of the various forms of primary disease with mercury and simple means is generally quite sufficient, and requires the introduction of no new medicine; the disease, in short, going through a regular course, and being relieved by the means employed, in the same manner, and in an equal degree, to that which is seen in other ulcerative affections. The progress of primary disease in the wards of St. Bartholomew's Hospital, where the treatment just described is practised, is attended with less interruption, and with fewer accidental occurrences, than the progress of any other equally important affection. It is true there are occasional accidents in this, as in every other affection, but they are certainly not common.

The questions now remaining to be answered are these:—Are the results of the employment of iodine in primary disease equal to those of mercury? and, secondly, is iodine beneficial in any of those forms of primary disease where mercury is injurious?

In sloughing phagedæna iodine does not seem to have been employed; this affection being much too serious a subject for experiment, and yielding in a most complete and rapid manner to a well known remedy. In a few simple sores, and in one case of indurated ulceration, the efficacy of hydriodate of potash has, however, been tried. When the patient was strong and healthy, the hydriodate of potash, employed in a case of ulceration of the groin remaining after a bubo, did no harm, but was unattended with the least benefit. In two cases of foul superficial ulcers of the prepuce a marked improvement took place under the use of this medicine, but in a third case it did no good. One case of indurated primary sore was treated with hydriodate of potash after mercury had been discontinued: the improvement still continued, and the patient got quite well.

These few cases in which iodine has been tried, together with the general result of its employment in a few more, are not enough to allow any very decided opinion being given from experience as to its use in primary disease. Some opinion may, however, be formed:—1. The employment of iodine has not been omitted altogether, and the little use which has been made of it has not afforded such favourable results as to induce a continuance of its employment. The effect, in fact, seemed to be none—it did neither good nor harm, but by its use it prevented other medicines being employed. In two cases of foul superficial ulceration improvement certainly took place, but in a third case the result was not so good, and rendered the cause of the previous improvement doubtful. 2. The patients in whom primary disease has lingered on, and gradually been attended with secondary symptoms, as well as those in whom primary and secondary disease occur together, without any very clear account being to be had as to their connection, are often very much reduced, and ill suited to any very active treatment. The general condition of these patients resembles closely those labouring under the phagedænic form of secondary disease, and their ailments are relieved by the same plan of treatment. The addition of small doses of hydriodate of potash to the sarsaparilla, with improved diet, is certainly beneficial to these patients, and assists in raising them up from their exhausted state to a moderate condition of health, in which the more direct measures suited to their local disease may be employed with more safety and greater advantage.

Amongst the venereal patients admitted into St. Bartholomew's Hospital, affections of the glands of the groin are very common, and of the most varying kind; they are more common amongst the male than the female patients, but some of the most serious kind occasionally are found amongst the latter. In some of these cases mercury is employed in reference to the glandular affection alone, but in the greater number the treatment is chiefly directed to the primary ulceration on which it depends. The employment of iodine in these cases has been tried occasionally, but not often, and in these cases its effect on the whole has not been very decided, and not at all comparable to that of mercury, which in some cases is attended with the most beneficial results, whilst in others its employment is unnecessary, and even disadvantageous.

Before describing the mode in which mercury may be beneficially employed in the treatment of affections of the absorbent glands, some allusion requires to be made in reference to the treatment of a very large number of persons, who are always found amongst venereal patients, namely those who labour under primary ulcers of a mild nature accompanied with suppurating or ulcerated buboes, which are also destitute of any particularly severe character. In these cases the primary ulcer is made the chief object of treatment, and is often covered with a mercurial lotion, whilst mercury is administered internally; the affection of the groin being treated with simple means. This plan of treatment is not accompanied with any bad effects, neither does the healing of the ulcer in the groin appear to be delayed by it; on the contrary, the healing of the sore and of the abscess generally proceed simultaneously, and with the greatest regularity, the one plan of treatment being beneficial to both.

In examining the effects of mercury on the affections of the glands of the groin in the venereal disease, some arrangement is necessary, and as the presence or absence of acute inflammation exercises on the whole the most important influence in modifying the treatment, the affections of the glands may conveniently be divided into two classes: 1st. Those in which acute inflammation of the glands or surrounding cellular texture exists; and 2dly, those cases in which the glands alone are gradually enlarged, or in which, with the affection of the glands, considerable thickening of the

surrounding parts gradually takes place at the same time. In these two classes mercury exercises a marked, but very different influence, and that difference appears to depend in a very considerable degree on the amount of accompanying inflammation, although the existence and nature of the glandular affection are sometimes connected very materially with the character of the primary ulcer. Thus the most severe primary sores, as the phagedænic ulcerating sore, and even sloughing phagedæna, are very much less frequently accompanied with bubo than the small ulcers of the glans and frænum præputii, whilst the circular sore, with well-defined induration, seems to occupy a middle place between the others, and to be accompanied only occasionally with a glandular affection of any importance. Where acute inflammation of the glands of the groin, with much swelling and redness of the skin, and accompanied with any considerable degree of fever, occurs in connexion with a small primary ulcer of a simple kind, the employment of mercury by frictions near the part appears to be rarely attended with any benefit. The part in general suppurates, and on bursting exhibits a condition of parts which appears to depend in many cases much more on the affection of the cellular tissue than of the glands, the latter often appearing simply swelled and exposed in the middle of the abscess. So rarely is the employment of mercurial frictions in the early stage of these cases attended with benefit, whilst so frequently do common means give relief and lessen the extent of the mischief in the groin, that the employment of the latter is to be chiefly relied on. It is not uncommon to find the glands of the groin with their adjacent cellular tissue converted into a painful hard mass, covered by tense red skin, and marked by a fold of the skin which crosses it in the line of the crural arch. This form of bubo frequently remains hard and painful for ten days or a fortnight, without undergoing any change, except a slight softening; this, however, not being accompanied by any suppuration, but having only a small quantity of fluid effused here and there through it. Although this form of bubo is more suited to the employment of mercury than that just mentioned, yet the effect of simple means is on the whole more marked, the swelling often subsiding under their use, but still passing on to suppuration occasionally in spite of all means.

The inflammatory nature of these two forms of bubo, in which rapid suppuration or extensive effusion of lymph into the cellular tissue surrounding the glands rapidly takes place, readily accounts for the want of influence which generally attends the employment of mercury in these cases, and explains the benefit which results from the employment of common means. Iodine applied locally in these cases does not seem to exercise any curative influence, whilst occasionally the application of the tincture of iodine to an inflamed bubo is attended with very serious results. The application of the tincture of iodine to an inflamed bubo of large size in a young healthy person has been known to produce a large foul slough of the integuments and subjacent parts, extending by a sloughing process so rapidly into the surrounding textures, that large doses of opium were required to relieve the pain, whilst the pure nitric acid was applied to prevent the extension of the sore. The iodine ointment has been tried as a local application to reduce the hard swelling of the parts in the groin which accompanies the formation of bubo, and remains after suppuration in some persons. The effect of it is not, however, very marked, and not attended with such benefit as to bring it into comparison with the employment of blisters and the other ordinary means used in such cases.

In the cases just considered the affection of the glands was accompanied with considerable inflammation, and often attended with very much more disease of the surrounding cellular tissue than of the glands themselves. The other class consists of cases in which the glands alone are gradually enlarged, or in which, with the affection of the glands, considerable thickening of the surrounding parts gradually takes place; the disease, in fact, being attended here with more affection of the glands, and less of the cellular tissue, than in the preceding cases. It is in this class of cases that the employment of mercury is often attended with great benefit.

The glands of the groin sometimes enlarge to a very considerable degree, without affection of the surrounding cellular tissue to any extent, and without any very marked degree of inflammation, the chief inconvenience being that of a swelling in the thigh, with dull aching pain. At other times the enlargement

of the glands is attended with extensive thickening of the surrounding parts, so that a considerable mass of hard tissue and glands, collected together, is found in the upper part of the thigh. In both these classes of cases the inflammation is often but slight, whilst the changes which take place in the part are not rapid or very marked.

A bubo sometimes remains for a considerable time as a hard mass, without undergoing any particular change, until at last it either becomes soft over a very small space, this soft part being surrounded and placed on a large bed of induration, or at other times this hard mass acquires rather a softer feel on the whole, without pointing at any particular part.

These different appearances are met with in different stages of venereal bubo, and all present some features in common. The affection of the surrounding cellular tissue is not acute, and is accompanied with considerable induration; there is a decided enlargement of the glands; the quantity of effused fluid is small, or it may be wanting, and this fluid bears but a small proportion to the solid parts of the swelling. It is in these cases that the effects of mercury appear to be the most marked, and in many cases to reduce the swelling without the occurrence of any suppuration; and when a fluid already exists in small quantity, in some cases to effect its removal.

The employment of mercurial frictions to the thigh below the enlarged glands, at the same time that it is one of the most gentle modes of bringing the patient under the influence of mercury, affords whatever additional advantage there may be arising from the passage of the mercury through the glands themselves. Frictions of mercury on the glands themselves irritate and inflame the part, and do not seem to be attended with any particular benefit; the constant application of strong mercurial ointment, spread on a piece of strong wash leather, to the swelling, certainly in many cases is beneficial, probably by acting as a firm compress at the same time that the mercury is placed on the part.

In many cases, under the employment of mercury in this way, the swelling slowly subsides; but such is not invariably the case. Even in apparently favourable cases the mercury appears sometimes to do harm, the swelling suppurating at once and most

copiously. When freely opened, the abscesses do not appear to be delayed in healing by the previous careful employment of mercury, but heal well and rapidly.

The glandular swellings in women and thin persons more frequently yield to this plan of treatment than in fat and heavy persons. In fat, coarse people, advanced in life, the employment of mercurial frictions is sometimes followed by fever, accompanied with very severe constitutional disturbance, and the formation of a large abscess in the groin, filled with dark fœtid pus mixed with blood.

In the majority of cases the gums are more or less affected by the employment of mercury, at the same time that the swelling is diminished; yet such is not invariably the case. In some instances the employment of mercurial frictions appears to increase the pain and swelling of the part. On the omission of these, the increased redness will often be found to subside, and a rapid improvement to take place in the part, without any particular treatment being adopted.

Amongst the poor of large towns, who cannot spare time for the cure of their slighter ailments, one disease sometimes begins before they have quite got rid of the remains of another. Thus at large hospitals patients are met with from time to time labouring under the constitutional symptoms of the venereal disease, and still having in their groins the unhealed fissures and sinuses of primary disease. Where the constitutional symptoms are of such a kind as to require the use of iodine, the remains of the old disease are equally benefited by it.

A form of bubo occurs occasionally of so serious a description as to threaten life, depending in some cases on the peculiarity of the individual or of the disease, and in others on the nature of the treatment. Where mercury has been employed in large quantities, and for a considerable period, without any improvement in the disease, with rapid failure in health and exposure to bad air, there can be no doubt that many persons are likely to die, and often have done so; but such indiscriminate employment of a useful means forms not the least objection to its use under proper regulations, nor does it show that the severe form of bubo which results from such treatment is produced by mercury alone. This

form of bubo is characterized by great redness of the integuments of the groin and upper part of the thigh, surrounding a foul excavated ulcer, which is covered with a white and grey adherent layer of matter and dead tissue, surrounded by a sharp edge of undermined dusky skin, and covered by a thin fœtid secretion. The pain of this sore is extreme, and the patients are so reduced in strength by the low fever under which they suffer as to be in great danger. Within the last few years six well-marked cases of this affection have occurred in St. Bartholomew's Hospital, of so severe a nature that life seemed to be in absolute danger; one, however, only died. In none of these was the quantity of mercury employed large, and in some very small indeed; the only common influence under which the patients laboured was that they were all in the venereal wards, and all subject to the venereal disease, other patients staying at the same time in the same wards, and under similar conditions, and with one exception unaffected. In this exceptional case the patient in the next bed to one labouring under this affection became similarly diseased, and in a very severe degree. Of these six patients three were prostitutes, but young and apparently healthy; one a Frenchman, one a countryman, and the other a boy living in London. Two cases happened together, of whom one died; the others were separate, and at different periods.

During the severe part of this affection there was no indication for mercury in any way, but the greatest need of wine, and means to support the strength of the patient. When the disease was rapidly spreading by sloughing, the nitric acid was applied with success in one case, whilst in another opium lotion was applied with great benefit. The balsam of Peru and charcoal poultice were, however, most beneficial in restoring the parts to health, and perhaps, on the whole, these were the means attended with the most decided and rapid improvement. The healing of the parts, after the sores had assumed a healthy appearance, was very rapid, and did not require any particular local or general means.

The form of bubo just described is terrible from its severity; the next is equally alarming, but from a different cause. In the length of time which it lasts, and in its resistance to one means

after another, it exceeds every form of primary, and most of the varieties of secondary disease. The following are some of the peculiarities which a case of this kind presents.

A man (for women are rarely affected with this form of disease) presents himself with the appearance of moderately good health, and without any particular fever or constitutional disturbance, but complaining of a sore in the groin. On examination a line of ulcers parallel to Poupart's ligament, and sometimes extending down along the perineum towards the anus, is discovered. This may be found on one or both sides, and the ulcers may form a chain all along the above-mentioned space, or they may be only three or four in number. These ulcers are partly cicatrized and partly spreading, the spreading part being generally the upper edge. The edges of the sore are ragged, undermined, and accompanied with considerable inflammation of the surrounding skin, whilst the surface of the sore is of a dirty-brown colour, and covered only with a thin secretion.

The age of a sore of this kind is not always reckoned by weeks or months, but by years, and it is the especially incurable form of primary disease. One means after another sometimes fails in completely removing this affection, and the treatment, which consists in common attention, and guarding against all accidental impediments to the healing of the part, seems sometimes to be the best plan, and that which is most calculated for the cure of the part, by allowing it to run its own course.

Iodine seems to exercise no influence in these cases. The employment of mercury has been very strongly recommended in their treatment; this remedy being administered in very small quantities, so as to affect the system very slowly, and to keep it under its influence for some time. The employment of mercury in this manner has been tried at St. Bartholomew's Hospital, and with decided improvement in the part, the improvement being slow, but greater than that derived from the use of any other means.

Amongst venereal patients growths from the skin about the genital organs, and occasionally about other parts, are frequently met with. Warts of the largest and smallest size are very common, and though tedious in their treatment at times, yet at last are removed. The preparations of iodine and mercury do

not appear to exert any very decided influence on these growths; it is true that they disappear occasionally during the employment of these means, but the clean condition in which the parts are kept is apparently the cause. Under the employment of cleanliness, and a constant removal of all moisture from the part, these structures generally cease to grow, and after they have got into a quiet state, the application of ordinary caustics in mild cases, and the removal with the knife in the more severe, are the easiest and most certain modes of completely removing the growths.

In addition to warts there is also frequently met with another growth from the skin, or more commonly an elevation of the substance of the cutis, with swelling and some degree of inflammation, accompanied with a white sodden condition of the cuticle and some excoriation, from which a thin acrid fluid at times exudes. To this the general term Condyloma is applied.

These appearances present themselves under several circumstances, of which the following are the most common :—

1. On the scrotum in the male, and along the line of junction of the mucous membrane with the skin of the labia majora in the female, slight ulcers occur in numerous places during or immediately after primary disease. These growths are rare, where the patients have been treated for the primary disease in the hospital, and are chiefly met with in persons who are neglectful of themselves in health, and have paid little attention to their disease, and appear to be the diseased remains of a slight primary sore. In men these lumps generally are rapidly removed by small doses of mercury; in women, however, they are much more intractable, but are relieved by the same plan of treatment.

2. Children labouring under the venereal disease, existing at birth or commencing a few weeks after delivery, frequently present small growths of this kind on the skin in the neighbourhood of the anus: in general, blotches of the skin, or scaly eruption, with fissures at the angles of the mouth, are found at the same time. The same mercurial treatment which is beneficial to the general symptoms also assists in the removal of these growths.

3. This affection occurs in patients who are suffering from scaly and tubercular syphilitic eruptions. On the parts exposed to moisture, as about the perineum and genital organs, patches of

the eruption seem gradually to shade into these growths, which appear to be simply spots of eruption modified by the situation and moisture of the part, and yield to the same plan of treatment as the eruption, assisted by removal of the moisture, by which they are particularly affected. This form of growth is accurately described by Mr. Hunter. After speaking of the syphilitic eruptions of the skin, he adds: "Such appearances are peculiar to that part of the common skin of the body which is usually exposed, but when the skin is opposed by another skin, which keeps it in some degree more moist, as between the nates, about the anus, or between the scrotum and the thigh, or in the angle between the two thighs, or upon the prolabium of the mouth, and in the arm-pits, the eruptions never acquire the above described appearances, and instead of scurfs and scabs we have the skin elevated, or, as it were, tumefied by the extravasated lymph into a white, soft, moist, flat surface, which discharges a white matter. This may perhaps arise from there being more warmth, more perspiration, and less evaporation, as well as from the skin being thinner in such places."*

In the cases already described the condylomata or flat growths from the skin have been either connected with the remains of imperfectly cured primary disease, or with the secondary affection of the skin in children and adults, and yield to the same plan of treatment as the affection with which they are connected, provided means be taken to place them in the same condition by removal of the moisture of the part.

It is not uncommon, however, to meet with cases of condylomata which cannot be classed under these heads, which in fact are not connected particularly with any cutaneous affection, and are less amenable to any plan of general treatment. Amongst the patients of a large hospital there are a certain number who labour under repeated attacks of gonorrhœa and syphilis, both primary and secondary, who are part of the lowest class of the population, and add to their sufferings from want, by intemperance, uncleanliness, and neglect of all kinds. Amongst these patients some are met with, from time to time, in whom the

* Hunter's Works, by Palmer, vol. ii. p. 408.

perineum and parts in the neighbourhood of the genital organs are covered with elevated patches of hard, sodden skin, with foul acrid discharge, which cannot be distinguished from other condylomata. In the production of these, dirt and discharge seem to have a considerable share, and to explain their presence, and any classification of them with regular constitutional cutaneous diseases, appears forced and unnecessary.

The influence of iodine and of mercury are beneficial if they remove the ulceration or primary disease under which the patient labours; the chief benefit, however, to the growths themselves is from other means. Cleanliness, cure of the discharge from the urethra and vagina, and keeping the parts accurately dry, are the most certain means of removing these growths, whilst the application of the nitrate of silver freely to their surface diminishes their size rapidly, and materially hastens their removal.

The application of calomel in powder to the parts after they have been well washed with chloride of soda, and then accurately dried, has been recommended. In some cases under Mr. Stanley's care this plan was tried at St. Bartholomew's Hospital, and with a very good result. It was not, however, clear that the calomel acted otherwise than as a dry powder in removing these growths, whilst its application exposed the patient to the risk of salivation, which took place to a considerable degree in one instance. To obviate this risk the following treatment was tried, which appeared to be attended with all the benefit and none of the inconvenience of the application of calomel :—

A woman was admitted into St. Bartholomew's Hospital, under Mr. Stanley, suffering from two long strips of condylomatous growths running along each side of the perineum, and ulcerated in some parts. She at first employed opium lotion, and a solution of alum to the parts for about a week after admission, with some relief. The following treatment was then practised : the parts were first carefully washed with the lotio sodæ chlorinatæ, then dried and dusted with the oxide of zinc. This was done twice daily, and was followed by the most marked benefit, the ulceration healing, and the growths subsiding so as to become level with the surrounding skin.

CHAPTER XVII.

SYPHILIS.

EMPLOYMENT OF MERCURY AND IODINE IN VENEREAL AFFECTIONS OF THE SKIN.

The number of patients admitted annually, labouring under syphilitic affections of the skin, is very considerable, and exceeds that of persons labouring under affections of the throat: the affections of these two parts frequently are found together; but disease of the skin is more frequently found existing alone, than affection of the throat. These patients have, in some cases, allowed the affection of the skin to go on for many months, are reduced in health, and still labour under primary disease, whilst in other cases the affection is recent, or even commences in the hospital, the patient sometimes remaining in the hospital in excellent health. The papular and scaly eruptions, with the irregular mottled eruption of the skin, are the most common; next to these the most common are the tubercular and pustular eruptions; and last in order of frequency comes the phagedænic pustular disease, to which the term rupia is given. The vesicular eruption is not here enumerated, as it appears to have occurred very rarely in any person's experience, and some cases of it already described are not very well marked. In the summer of 1841, a case of vesicular eruption, resembling those which have been described as vesicular syphilitic disease, occurred at St. Bartholomew's Hospital, under the care of Mr. Lawrence, but so close was its resemblance to varicella, and so deficient were any distinctive characters to

separate it from this affection, that it might perhaps be considered as varicella, occurring in a patient labouring under the venereal disease. Under the employment of common means this case did well, neither iodine nor mercury being required for its relief.

Although in the great majority of cases these eruptions are decided and well marked, yet at certain periods, and even from the first in some instances, they present a mixed character. Thus the simple mottling of the skin in its late stage approaches very closely to the mild cases of scaly eruption, whilst some of the cases of scaly eruption present such an elevation of the skin as to border very closely on the tubercular disease. Again, the conical crusts of rupia, though well marked in many cases, sometimes border very closely on the pustular eruption, to which they seem still more closely allied by their early pustular character, and the almost constant absence of any vesicular appearance in the early stage. The papular eruption differs much in the degree of accompanying constitutional disturbance, being, in some cases, during its early stage, accompanied with a very considerable degree of inflammatory fever, whilst at other times the whole progress of the affection is not attended with any considerable disturbance of the patient's health. The greater number of cases present themselves for treatment after the early stage of the eruption has gone by, and when some of the papules are beginning to desquamate; the eruption having, however, in many lasted for several months, and having been treated by a variety of means.

Under the employment of proper means the cases of papular eruption generally do very well, even though they may be of considerable standing; the obstacles to the complete cure being its complication with inflammation of the external tunics of the eye, the successive eruption of fresh crops of papules, and the formation of deep copper-coloured or dark purple stains after the removal of the papules.

Whilst this affection is coming on, in proportion as it is accompanied with fever, the more prominent the papules are, and the smaller the appearance of any desquamation of the cuticle, so much the more beneficial is a general antiphlogistic treatment, and so much less the chance of any advantage from mercury or iodine.

Under the employment of a low diet and mild aperients the eruption often passes through its early stages rapidly, and leaves a condition of the skin which is often removed by the employment of mercury, and which occasionally assumes of itself the condition of health.

It is when the eruption has ceased to be accompanied with any degree of fever, when the papules begin to desquamate, and the eruption to appear only in a few fresh places, that the employment of mild doses of mercury, so as to keep the gums just slightly sore, is so beneficial, and attended with more advantage than any other mode of treatment. Under this plan, the eruption, although of many months duration, gradually subsides, and often leaves the skin in a perfectly healthy condition.

Cases however occur, from time to time, in which this form of disease yields as little to treatment as any syphilitic eruption; successive crops of papules appearing as fast as one set is removed. So long as no new papules appear, the old papules sooner or later yield, but where new crops come, these cases are occasionally most tedious. No plan, on the whole, however, succeeds so well as the mild employment of mercury, conjoined with the warm bath and a generous diet, to which may be advantageously joined in some cases the administration of quinine.

When the blotches are simply copper-coloured they gradually fade with the decline of the eruption, and though remaining for some time after the desquamation of the cuticle, yet are generally removed under the employment of the same plan of treatment, continued for rather a longer space of time. When the blotches are of a deep purple tint, or even sometimes of the colour of venous blood, though reduced by treatment to a certain degree, they are removed with difficulty. No plan of treatment, in some cases, seems to have the power of rapidly removing these stains, which yield more to time than any thing else, and which fortunately present the deepest tint in parts which are covered.

Hydriodate of potash exercises a certain degree of influence in those stages of the papular eruption in which mercury is employed with benefit, but its influence is certainly very much less; and occa-

sionally cases in which iodine has been attended with but slight advantage are cured rapidly by the employment of mercury. It may be said that the papular eruption yields to iodine, where the acute stage of the affection has gone by, or where no fever exists from the first; but its efficacy in these cases is not very much greater than common means, and in the really obstinate cases of papular syphilitic eruption the efficacy of iodine does not appear to be at all comparable to that of mercury. In the summer of 1844, two well-marked cases of papular eruption, accompanied in one case with stains of a very deep copper colour, were admitted together into St. Bartholomew's Hospital, under Mr. Stanley. The eruption had existed for some time, and was unattended by any febrile disturbance. Under the employment of hydriodate of potash the patients improved, and went out better, but the amendment was so gradual that no very decided benefit appeared to be derived from the employment of iodine.

The scaly syphilitic eruption is common, and often exists for many months without undergoing any great change, being one of the most intractable forms of disease with improper treatment, but yielding most certainly and rapidly to the employment of suitable means. This eruption generally appears under the form of psoriasis guttata, that form to which the term diffusa has been applied being less common, whilst psoriasis gyrata is so rare that even amongst the mass of syphilitic patients admitted annually into St. Bartholomew's Hospital not one case is met with in each year. The most common accompaniment of this affection is ulceration of the throat, but iritis, affection of the auditory meatus, and ulcerations of the integuments, occur occasionally at the same time, whilst the extension of the affection of the skin to particular parts produces falling off of the hair, ulceration of the corners of the mouth, psoriasis palmaria, condylomata, and rhagades digitorum. The scaly syphilitic eruption is generally clearly marked, but such is not invariably the case; the patches ofskin being at times so much elevated, before any separation of the cuticle takes place, that the term tuberculo-squamous might well be employed. The only other source of confusion arises from the scaly appearance assumed at times by the papular eruption in its decline, which, however, may with care be generally distinguished. Whatever difficulty, however,

arises in distinguishing either the tuberculo-squamous or later stage of the papular eruption from the scaly disease, is not of extreme importance, as the same means produce good effects more or less in these three forms of disease. In no form of disease is the efficacy of medicine more marked than in the treatment of the scaly syphilitic eruption by mercury. Under the internal administration of mercury to such a degree that the gums are kept slightly sore, this eruption gradually fades and clears off, leaving a healthy skin below. In many cases no stain of any kind remains; but such is not invariably the case, as at times the pale copper-coloured blotch remains for some weeks, disappearing gradually, and certainly being relieved by the continued employment of mercury in small quantities for a considerable time. The scaly eruption disappears so much more easily under the employment of mercury than by any other means, that this remedy deserves to be employed in the first instance in almost all cases, and in doubtful cases, where the scaly eruption exists with other secondary symptoms, these symptoms being capable of relief by either mercury or iodine, the existence of the scaly eruption is sufficient to justify the employment of mercury in preference to any thing else. In some cases of mixed secondary symptoms the existence of the scaly eruption enables the surgeon to decide as to the employment of a particular remedy: there is, however, another set of cases in which the employment of mercury serves a double purpose, for the existence of a hard mass after the partial cure of an indurated primary sore is not unfrequently followed by the appearance of a scaly eruption, with other secondary symptoms, which yield to the employment of mercury, the same means relieving at once the secondary and the remains of the primary disease.

Mercury exerts so great an influence in the cure of the scaly eruption, that iodine is rarely tried: the use of this latter medicine is not, however, always unattended with benefit. Where the affection of the skin is considerable, the effects of iodine are neither rapid nor very well marked; the eruption becomes paler, and in some parts is nearly removed, but the cure is imperfect, and very slow in its progress. Where the affection of the skin is slight, and the patient objects to the use of mercury, the administration of hydriodate of potash has been known to have been

followed by the complete subsidence of the squamous eruption, and similar benefit has been seen to attend the employment of iodine after the employment of mercury; but on the whole the advantages attending the use of iodine in the squamous eruption are not at all to be compared with those which attend the administration of mercury.

Tubercular syphilitic eruption, in the purely tubercular stage, is much less common than the scaly and papular diseases, as the eruption generally assumes a scaly appearance, or terminates in ulceration after a certain period. Amongst venereal patients, a certain number of cases, however, are met with who suffer from simple tubercular eruption of the skin, more especially of the face, the spots being scattered more or less closely to each other, but forming distinct elevations of a light coppery colour, and accompanied with other secondary symptoms. When the patient's health is good, and has not been reduced by any particular cause, the employment of mercury in small quantities is attended with great benefit; this eruption, in favourable cases, yielding quite as readily as the scaly eruption to the influence of that medicine, and often requiring even a smaller quantity. The tubercular eruption occasionally assumes a very mild form, which lasts for a few weeks, and ultimately terminates by resolution, the skin hardly undergoing any alteration, a simple light-coloured stain without any separation of the cuticle being the only change which occurs. The employment of hydriodate of potash in such cases is attended with benefit, and seems to act as well as mercury, to which it is preferable in cases where the general condition of the patient, or the nature of the accompanying symptoms, render the employment of mercury unadvisable.

The pustular eruption of the skin occurs occasionally as a secondary symptom in strong healthy persons, but most commonly the patients labouring under this form of disease are reduced in health, and have been more or less invalids for a considerable period. Where the health is not weak, where the eruption does not run readily into ulcers, and especially those of the semicircular form, but dries and scabs off, leaving a small moderately healthy sore, the employment of mercury in the same manner as in the scaly eruption, but with close watching, is generally the

best plan of treatment. In some cases the general fumigation of the body is employed, but on the whole the internal administration of mercury is attended with less risk of a sudden violent salivation, which is, in the pustular form of eruption, to be carefully avoided.

In the forms of eruption already described the employment of mercury is attended with considerable benefit, the eruption in some or all of its stages yielding rapidly to that medicine. The majority of these patients labour under a disease unattended with any particular severity, and the disease passes through a regular course, in which the employment of the same means under the same circumstances produces a most favourable and even result. The remaining class of skin affections includes a great number of patients, especially among the poor, whose ailments, in general, yield to treatment; but still they are often cured with the greatest difficulty, and in some few cases the patients die. These patients labour under ulcers of the skin of every variety, and are in the most varied state of health, though it is far more common to find an extreme deficiency than an excess of strength amongst them.

These cases of severe secondary ulceration of the skin arise from many causes; of which the following are the most common. The eruptions of long standing, especially the pustular and tubercular, terminate in ulceration, not unfrequently as a part of their regular progress, and often from neglect; ulcers also of the scalp and extremities commence like ulcerations in other parts, occurring in great number, scattered here and there, or in a small quantity, but of a very severe form. The eruption which forms the conical crust of rupia is followed by a most obstinate form of ulceration, and occasionally small hard masses form under the skin, soften and burst by a small opening surrounded by thin blue skin, this opening leading into a round cavity with hard sides, and secreting an unhealthy pus. Such are the most common forms of the severe secondary ulcers of syphilis, dependent on a few principal causes. The prostitutes of the lowest class, and men in the most utter poverty, who are admitted time after time into hospitals, labouring under one attack of syphilitic disease after another, and who seem

MEDICAL SOCIETY

only to apply for the cure of their disease when the pain of it is no longer to be endured, or the mere inconvenience of it too great, exhibit the most severe forms of secondary ulceration of the skin. This class seem to labour under such severity of disease from their neglect and other incidental circumstances. There are, however, some whose sufferings are nearly as great as these, in whom no such unfavourable circumstances exist, and whose health, until they are reduced by the disease, is not bad: the disease itself in these cases is of a particularly severe form, or the constitution of the patient is naturally of such a kind that these persons suffer in an unusually severe manner.

It is amongst persons labouring under these forms of cutaneous disease, with other secondary symptoms, that the evil effects of mercury have been described as occurring. These severe ulcerations have been often attributed to mercury in so bold and decided a manner, that every case of this kind has been supposed to depend on this cause. The wards of a large hospital are especially suited for settling a question of this kind, inasmuch as patients are received from all quarters, and after every variety of treatment, and the same patients treated in that hospital and elsewhere are admitted at many different and distant periods.

The employment of mercury, necessary for the cure of syphilitic disease, with attention to the health at the same time, does not appear to have any influence in the production of these severe forms of ulceration, and the occurrence of them is not frequent in persons so treated. The patients admitted under this form of disease are not by any means those in whom mercury has been cautiously employed for the primary disease, and completely cured, but are generally those in whom some of the above-mentioned causes exist. In fact, no evidence really can be found that the cautious use of mercury has any thing to do with the production of these ulcerations, but rather that the complete cure of the primary disease by such means is one of the most certain means of preventing their occurrence.

The cautious use of mercury seems to have been undeservedly

blamed in many cases, and the medicine thus brought into disrepute; but the abuse of mercury in some cases seems to be one of the causes productive of this form of disease. Mercury employed in large quantities for primary disease, without producing any effect either on the disease or the mouth, seems to be at times almost as detrimental to the health as a violent salivation kept up for an unusually long time. Neglect of even common care during a mercurial course exercises a most prejudicial influence, delaying the cure of the primary disease, and at the same time reducing the patient's health, but amongst the lower classes the employment of mercury does not prevent them exposing themselves to wet and cold of the severest kind, and it would be unfair to illustrate the bad effects of mercury by persons who have not paid even common attention to those precautions which are necessary during the most ordinary medical treatment.

The secondary ulcerations of the skin which are most commonly met with are these: — 1. Numerous ulcers scattered here and there over the body, face, head, and limbs. 2. Large semicircular phagedænic ulcers, occurring chiefly at the junction of the extremities with the trunk. 3. Round deeply excavated ulcers occurring in small numbers, or even sometimes singly.

1. Patients who have laboured under primary disease in a common form, are liable, at no very distant period, to the occurrence of numerous separate ulcers, situated especially about the legs, head, and chest, of a small size, a round form, and covered with a foul yellow surface. These persons are rarely in good health, but are not very weak; they generally labour under other secondary symptoms, of which ulceration of the tonsil, and scaly eruption, are the most common. These ulcers may arise in consequence of the pustular or tubercular eruptions, or from the occurrence of small suppurations immediately under the skin. These ulcers most commonly, however, commence by a red spot on the skin, which becomes thin, and ulcerating allows a little matter to escape, and at the same time gradually forms an ulcer. The ulcers resulting from the tubercular and pustular eruptions gene-

rally occur in persons of weak habit of body, and in character and appropriate treatment belong as often to the next class of ulcerations as to that which is here described.

This class of ulcers is generally benefited by the employment of mercury, assisted by the local application of the yellow wash. The patient's health in general offers no objection to the employment of mercury, whilst this medicine is sometimes more forcibly indicated by the existence of the scaly eruption, and the excavated ulcer of the tonsil. When the ulcers have no tendency to the semicircular form, and mercury has not been employed in a decided manner, the benefit resulting from the cautious administration of it in these cases is sufficient to justify its use as the means most likely to bring about a complete and permanent cure.

2. The large phagedænic ulcers of the skin form a well marked class by their visible characters, as well as by the treatment which they require. These ulcers are not deep, and do not generally go through the entire substance of the skin; they are generally of an oval or semicircular form, and spread on one side, whilst healing on the other, so that a peninsula of cicatrix extends into the concavity of the sore. These sores are remarkable for the size to which they sometimes extend, especially when situated over one of the joints; the largest sores of this class being also very liable to occur on corresponding parts of the two sides of the body.

In no cases is the hydriodate of potash more beneficial than in the treatment of this class of sores. The administration of twelve or fifteen grains of this substance daily with sarsaparilla produces the most marked change in the sore, and in the general condition of the patient's health. The degree of benefit thus produced is greater than that which follows the use of any other means, and though occasionally even this medicine fails, the result of its employment is on the whole so good that a confident hope of cure may be entertained from its use.

3. It is not very uncommon to meet with patients whose chief venereal disease consists in a few deeply excavated ulcers of the skin, or whose sole complaint is a single ulcer, which, though oc-

curring alone, makes up for this peculiarity by its extreme severity. This ulcer is extremely painful, and extends deeply, so that a part appears to be gouged out. It is sometimes so deep that a portion of the tibia is exposed and lies dead at the bottom of the ulcer. The ulcer is of a round or oval form, of the size of a half-crown, surrounded by a sharp margin which separates it from the surrounding shining and inflamed integument. The surface of the sore is covered with a thick layer of matter, mixed with a firm substance of a brown or black colour. This ulcer is generally accompanied with pains in the bones and scalp, and occasionally with swelling of one testicle, or a few blotches from the cicatrices of a pustular eruption.

This sore occurs generally late, sometimes at the distance of nine or even twelve years from the cure of the primary disease, and commences as a hard patch of skin or a vesicle, which continues for some time in a tolerably quiet state, but at last, from being opened, or from some irregularity in treatment or on the part of the patient, becomes converted into a foul sore. It is not unusual for these patients to mention that the original primary disease was of a severe kind, or that they employed mercury very largely for a mild sore, and were profusely salivated. These patients are generally reduced; quite unable, from their pain, to get a good night's rest, and utterly unfit for any active treatment. The administration of a grain-dose of opium at night, with good nutritious diet, even sometimes with wine, does much for the cure of these patients; but a good deal more may still be done. The employment of hydriodate of potash is attended with the most marked benefit in relieving the pain and improving the condition of the sore, so that a foul ulcer of a month's duration may thus often be converted into a healing sore in a week. The only doubt about the employment of mercury in these cases is in reference to its local application, its internal use not being at all equal to that of the preparations of iodine. The application of black wash to the sore, even in its ulcerated stage, often produces a marked change for the better, whilst the same benefit in an equal degree occasionally also attends the employment of the balsam of Peru.

Notwithstanding all care in the employment of mercury and iodine in the treatment of venereal ulcers of the skin, they are sometimes very hard to cure, and one medicine fails after another, till the case appears quite desperate. When ordinary means fail, and remedies begin to be tried because they occasionally do good, no medicine is more deserving of trial than corrosive sublimate in the proportion of one-twelfth of a grain three times a day continued for some weeks. After the employment of iodine and mercury according to the common rules, and their failure, this medicine sometimes produces a most marked effect, and the remains of the partially cured disease are gradually removed. This relief is not only obtained in cases of ulceration of the skin, but in some obstinate cases of the papular eruption.

Some few opportunities have occurred of examining persons who have died with the remains of syphilitic ulceration, and in whom the obstinacy of the disease was partially accounted for:—

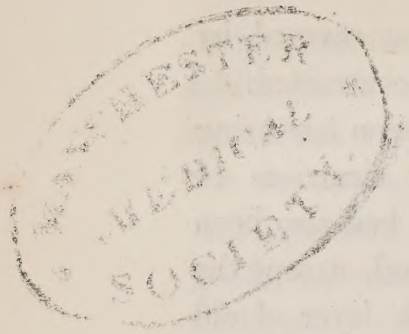
1. A young prostitute was admitted time after time into St. Bartholomew's Hospital with foul phagedænic sores, and disease of the throat. She used to get better, and then return to her old habits, until her disease again obliged her to apply again for relief. At last she gradually failed, and died with ulceration of the skin and throat. On dissection there was no evident internal change to account for her death, and she seemed to have gradually died from the exhaustion produced by her repeated ailments.

2. 3. Two women were in St. Bartholomew's Hospital with large foul ulcers of the genital organs, accompanied with very considerable œdema of the surrounding parts. No medicines were sufficient to cure them, and they left only relieved. In one there was a cavity in the apex of the lung; in the other there was occasional hæmoptysis, with evident disease of the heart, and less certain disease of the lungs.

4. A young woman was in St. Bartholomew's Hospital for the space of more than a year labouring under phagedænic ulcers of the legs and arms. She took one medicine after another, but nothing was sufficient to cure her: at last she became dropsical, and died. The kidneys, lungs, and heart, presented nothing

unnatural in any decided manner. The liver was covered by thickened peritoneum, and was hard, granular, and contracted.

5. A middle-aged woman was brought for dissection labouring under ascites. The skin was marked with the cicatrices of numerous phagedænic sores ; the septum of the nose had also been destroyed. The internal organs were tolerably sound, except the liver, which was large, and covered with a thick layer of old lymph.



CHAPTER XVIII.

SYPHILIS.

EMPLOYMENT OF MERCURY AND IODINE IN AFFECTIONS OF THE THROAT, LARYNX, TONGUE, AND TESTICLE.

Venereal affections of the mucous membrane of the fauces and adjacent structures are very common, and are generally accompanied with other secondary symptoms. These structures are affected in persons of every variety of health, and with varying degrees of severity, the disease at times being so mild as hardly to deserve notice or treatment, whilst at other times the destructive processes are rapid, and, from their proximity to the upper part of the larynx, extremely dangerous. The milder forms of venereal diseases of the throat affect the membrane covering the palate, cheeks, surface of the tonsil and tongue, with superficial ulceration; that next in severity is the excavated ulcer of the tonsil; whilst the most destructive form of disease of the throat is rapid sloughing or ulceration of the pharynx. These forms of disease often shade more or less into each other, and are variously modified; but still the great mass are included under one or other of the above-mentioned heads, by their external characters as well as by the treatment which they require. The superficial inflammation of the fauces often terminates without any ulceration, and gradually subsides; at other times it is accompanied with the eruption of vesicles closely collected together, or with the formation of ulcerated patches of elevated mucous membrane, to which the term condylomata has been applied. Such are the mild forms in which superficial inflammation of the fauces terminates, instead of proceeding to the common form of superficial ulceration; but

at other times its variations are not of so mild a character, and from common inflammation of these parts foul ragged ulcers of a tolerable depth occasionally occur. The excavated ulcer of the tonsil, with its sharp well-defined margin and buff-coloured surface, is less modified than the other forms of ulceration of the throat, the real characters being generally well marked, and not commonly accompanied with disease of the neighbouring parts. Ulceration of the pharynx is sometimes confined to a simple ulcerative process, but such is not always the case: at times, and especially in severe cases, there is more or less degree of sloughing of the parts, and the ulcerated surface of the pharynx is covered by a foul yellow substance of a firm adhesive nature, which appears to be the discharge of the sore mixed with some slough.

Patients labouring under mild secondary disease, as the papular eruption, and but slightly reduced in strength, are liable to superficial inflammation of the mucous membrane of the fauces, accompanied with a slight degree of fever. The tonsils are swelled and inflamed, whilst the uvula and soft palate present an œdematous appearance, the pharynx having at the same time a dry glazed appearance. Although this form of disease occurs in general with mild symptoms, yet such is not invariably the case, as patients labouring under ulcerations of the skin and scalp, with pains of the bones, occasionally present also an erysipelatous affection of the mouth and fauces closely resembling this.

There is an inflammatory affection of the mucous membrane of the fauces which occurs occasionally, and deserves mention; this affection consists in redness of the uvula, soft palate, and posterior wall of the pharynx, accompanied with numerous elevations of an opaque white colour, minute size, and closely aggregated together. In some parts of the soft palate these vesicles are so closely set as almost to cover the entire surface. On the posterior wall of the pharynx they are less closely placed, and are of a larger size. This condition of parts has been seen in connection with a similar affection of the lining membrane of the eyelids, as well as with ulcerations of the integument and scalp.

Simple inflammation of the fauces, if not subsiding gradually, terminates generally in excoriation or superficial ulceration; at

other times elevated patches of ulcerated mucous membrane appear on the palate, pillars of the fauces, and gums, varying from the size of a pea to that of a bean, or even of a half-crown. These spots are of an irregularly circular form, elevated and covered with a soft pulpy substance, of a white colour, resembling sodden cuticle.

The excavated ulcer of the tonsil, with sharp edges and a deep hollow cavity, covered on its surface with a firm substance of a dirty white colour, and surrounded with very little inflammation, is the most common form of ulcer, next to those arising from superficial inflammation. It is generally accompanied with affection of the skin, and is most commonly confined to the tonsils themselves.

The pharynx is liable to the same syphilitic affections as the anterior part of the mouth, but is also affected at times separately, and in a different manner. The most severe cases of ulceration and sloughing are generally confined to the back part of the fauces, and are unconnected with disease of the anterior parts of the tongue and palate. In the forms of disease already described as occurring in the fauces and tonsils, the health is not necessarily much reduced, and occasionally very little suffering is produced by even severe disease. In the affections of the pharynx, however, such unaltered health is rarely met with, and some degree of emaciation, considerable suffering, and a generally reduced condition of health, are commonly found to be present, more especially if the disease is accompanied with a foul sloughy condition of parts, instead of simple ulceration.

The syphilitic affections of the pharynx, exclusive of those forms of disease which are common to it with the surrounding parts, are severe but simple ulceration, and foul ulceration with sloughing. The foul sloughing ulcerations are large in extent, especially in the vertical direction, in which they sometimes lie beyond sight; they occupy more or less of the posterior wall of the pharynx, pillars of the fauces, and edges of the palate. The surface of the sore is covered with a foul yellow substance soaked with pus, whilst the surrounding membrane presents a red erysipelatous appearance. This form of ulcer is accompanied sometimes with great difficulty of swallowing and breathing, as well as

with occasional attacks of dyspnœa of such severity as to threaten suffocation. The eruption accompanying this ulcer is commonly of the pustular or tubercular form, with nodes and pains in the limbs of long standing. The severe cases of sloughy ulceration of the pharynx are accompanied by these symptoms in varying degrees, the severity of the disease being sometimes greater, but generally less, than that just described.

The ulcerative disease of the pharynx is characterized by a simple but deep sore, presenting a raw surface and sharp angular edges, not covered by any quantity of secretion, nor surrounded by any great redness of the mucous membrane. This form of ulceration often lasts for a very long period, and is accompanied with great pain and some alteration in the voice, on account of its proximity to the larynx.

The syphilitic affections of the throat are generally very amenable to treatment, and affected in their different forms by mercury and iodine in a decided manner. When the disease does not pass into ulceration, but remains simply irritable and inflamed, the employment of common means is in general sufficient, and it is chiefly when ulceration occurs that specific means are required. Ulceration, however, occurs in most cases; and although common means are often sufficient to bring about a cure, yet such a cure may not only be hastened, but also rendered more complete, by the employment of the two remedies now under consideration.

When the inflammation of the mucous membrane of the fauces is followed by the eruption of a number of vesicles, or by the formation of elevated patches of ulcerated mucous membrane resembling condylomata on the surface of the palate, the effects of mercury are not very well marked; the disease, in fact, seems to run its course without being much acted upon by it. The rare occurrence of the vesicular eruption prevents any very decided opinion being given against the use of any particular means; but, so far as it has been observed, the disease has seemed to decline of itself in about a fortnight after admission, under a simple plan of general treatment, without any particular reference to the affection of the mucous membrane of the mouth.

It would be a great gain if any plan of treatment could be found to act rapidly on the condylomatous thickening and ulcera-

tion of the mucous membrane of the fauces and palate. The appearance of the disease, with its swelled mucous membrane and utter absence of any acute character, suggests at first sight the probability of any improvement being slow; and experience fully confirms these expectations. Mercury has been sufficiently tried, and does not seem to have any decided effect. Two very well marked cases have occurred at different times in St. Bartholomew's Hospital, which have been benefited chiefly by the repeated application of the nitrate of silver to the part, and the employment of quinine. Where the quinine was employed, there were general indications for its use; yet such was the benefit from its employment, that unless some objection on account of the condition of the patient exists, the trial of it is certainly advisable. These elevated patches of membrane sometimes resemble very closely the rhagades digitorum, on which the nitrate of silver acts so beneficially, and apparently in a very considerable degree from keeping the parts dry. It would be hard to keep the mouth dry; but the nitrate of silver, at the same time that it arrests the growth of these structures, acts on their surface, and covers them with a thin layer of hardened substance instead of the thick white substance which they commonly present.

The cases of superficial ulceration of the fauces require much the same treatment as the papular eruption; that is, they very often cease under common care, and the absence of any errors in habits or diet, which may render them unyielding. In some cases, however, as in the papular eruption, the simple means only help the cure on a certain way, and a part still remains unrelieved. In removing these remains mercury is more useful and certain than any other means; and even in cases of very long standing its use is often attended with the greatest benefit.

The mild employment of mercury in the greater number of cases of ulcerated throats connected with syphilis, is on the whole attended with success, and more rarely followed by disappointment than any other plan of treatment. In the excavated ulcer of the fauces and tonsils, the employment of mercury is attended with the greatest benefit. Under its influence ulcers of a very considerable size assume a healthy surface, and rapidly cicatrize; their cicatrization under these circumstances being more complete

and certain than that which occurs in some of the other forms of ulceration, whilst relapses after cure are also less frequently met with. Although the mercurial effects on the constitution are chiefly to be desired in this form of ulcer, yet the local application of the fumigation is not to be neglected in all cases. Taken alone, the efficacy of cinnabar fumigation is much less than that of mercury administered internally, but it is a great assistance in hastening the cure, and at times relieves the pain of the part in a very marked degree. The effect of fumigation is sometimes marked before any mercurial affection of the gums occurs, and even after a single application a sore sometimes assumes a healthy and healing surface.

The hydriodate of potash may be employed with success in cases of the excavated ulcer of the tonsil; but the convalescence of the patient is more slow than when mercury has been employed, and is not always accompanied with the complete removal of the accompanying symptoms of syphilis, as generally occurs where mercury is employed. On the whole, the employment of hydriodate of potash in this form of disease is not attended with that rapid or decided benefit which generally follows the employment of mercury.

There are many patients labouring under syphilitic ulcers of the throat, which are foul and also ulcerated; presenting, in fact, a form of disease which combines many of the appearances of the excavated ulcers of the fauces and sloughy ulceration of the pharynx. Whether the disease is mixed or not is a matter of comparatively trifling importance, compared with the fact that these ulcers are very amenable to a mixed plan of treatment. Under the administration of the hydriodate of potash internally, and the employment of cinnabar fumigation to the throat, these cases do remarkably well, and give very little trouble.

Patients labouring under the foul sloughy ulcer of the fauces are generally feeble, and very rarely present that condition of health which could be benefited by general bleeding, or active antiphlogistic treatment. Their appearance is sickly, and they have often laboured on at their work with the disease hanging about them, until its severity has rendered them at last unable to work, and obliged them to apply for relief. To the greater number of these

persons, wine and porter, with a nutritious diet, are given, whether mercury or iodine be employed. The employment of hydriodate of potash is followed in these cases by the best results, and generally gives relief in three or four days to the difficulty of swallowing, as well as diminishes the pain. Within a week from the commencement of the use of the medicine the ulcer assumes a healthy appearance, the general condition and appearance of the patient undergoing at the same time a marked change for the better. When this decided improvement has once taken place in the sore, and the patient's health at the same time improves, the rapidity of convalescence is often remarkable, and the loss of parts much less than might at first have been anticipated from the serious and rapid disorganization of the part which was taking place.

The dose of hydriodate of potash employed at St. Bartholomew's Hospital is four or five grains three times in the day, given in half an ounce of the essence of sarsaparilla, or in an ounce and a half of water, or the compound decoction of sarsaparilla, for each dose. In many cases the addition of opium or morphia is made. This addition in severe and painful cases is often attended with great benefit; but such is not always the case, as the patient is sometimes rendered restless and uneasy by it, and does better with the hydriodate of potash only.

Since the hydriodate of potash has come into such general use, it is remarkable how rarely cinnabar fumigation has been employed as a remedy for foul sloughy ulceration of the fauces. There can, however, be no doubt that fumigation has been used with the greatest benefit in these cases, and the general result of the recorded experience on this subject appears to be to the following effect. In some instances, where this affection of the throat has presented the most unfavourable appearances, cinnabar fumigations have produced a complete and sudden arrest of the destructive processes, converting a sloughy into a healthy granulating surface, though occasionally at the expense of a severe ptyalism. When the nature of the disease is such as to require immediate arrest, where the previous medical treatment has proved insufficient, more especially if the patient should chance to be strong, and have not already employed mercury, the probability of success from the employment of cinnabar fumigation is such as to recommend its

use. Great caution appears to be necessary in the employment of the medicine, for not only is the low condition of the patient, which generally exists in these cases, very much aggravated by salivation, but patients labouring under these large ulcers are salivated very rapidly, and with great severity.

Where syphilis continues for many years, progressing from bad to worse, and gradually reducing the patient, disease of the larynx is not uncommon. This affection is, however, rarely seated in the larynx so exclusively as where inflammation occurs under common circumstances in the same part, but generally forms a part of extensive ulcerative disease, which includes the pharynx, epiglottis, and neighbouring parts. Acute laryngitis, however, does occasionally occur in syphilitic patients; but the more common affection is a chronic destructive ulceration of the pharynx, larynx, and epiglottis. A case of apparently simple acute laryngitis occurred in a female in the syphilitic wards of St. Bartholomew's Hospital, which, though severe, yielded to the ordinary means, and chiefly to the local abstraction of blood. In this case no opportunity occurred of ascertaining the exact condition of the parts, in reference to the existence of ulceration, and the specific nature of the disease remains necessarily a matter of doubt; there might have been even here an ulcer of these parts beyond the reach of sight, but the general features of the case resembled those of common laryngitis. The most common appearances presented in syphilitic disease of the larynx are a mixture of extensive cicatrization with ragged ulceration. The parts destroyed previous to death may include the epiglottis, the arytænoid cartilages, and a very considerable part of the soft tissues situated above the chordæ vocales; or the destruction may be less extensive, and more remarkable for the deformity arising from the thickening and irregularity dependent on the unnatural union of the cicatrized parts.* The firmness of the cicatrices of the diseased parts, the extensive destruction which has taken place, and the history of the case, indicate the length of time which this ulcerative disease of

* A very complete series of preparations of these changes is cited by Mr. Houston in the Catalogue of the Museum of the Royal College of Surgeons in Ireland. C. a. 27, 36, 40, 41, and *C. a. 63, 65.

the larynx may have lasted, as well as the degree to which it may proceed without destroying life. The degree of immediate risk to life appears to be proportionate to the œdematous swelling of the part, whilst the degree of ulceration, though attended in this form of laryngitis with less immediate danger, is a form of disease terminating not uncommonly in death, and which occurs chiefly in that stage of syphilis which so closely resembles the hectic fever of tubercular phthisis.

Great advantage may be derived in this disease from the employment of mercury and iodine. The constitutional employment of mercury does not appear to be attended with decided advantage, or with that degree of benefit which occasionally attends its local application. In the cases which recover, the chief signs of the affection of the larynx are hoarseness, pain in the throat, and evident disease in the neighbouring parts. Under the employment of mild mercurial fumigation the portion of the ulcer which is visible in the pharynx may be seen to heal, whilst the distressing pain and hoarseness diminish, until the patient by this and other means is restored to comparative health. The employment of fumigation requires great caution, as salivation is in itself an evil in these cases from the swelling and inflammation of the parts about the mouth. The great gain, however, which we now possess in the hydriodate of potash, as compared with a few years since, is exemplified in these cases. The administration of this medicine in moderate doses, with a nutritious diet, is often attended with the most marked benefit, and may be conjoined with the application of mercurial fumigation to the part. The improvement in swallowing, the conversion of a foul ulcer into a healthy surface, the relief to the aching pains, which so frequently accompany this form of disease, are sooner, more completely, and more certainly produced by the employment of iodine than by any other means. The disease is generally accompanied with the appearance and habit of body peculiar to phagedænic disease; it also occurs not unfrequently where very large quantities of mercury have been used without discretion. This condition of body resulting from a bad disease and a questionable mode of treatment, is especially benefited by the employment of hydriodate of potash, and by its use the various local symptoms are remarkably relieved. It is

not, however, in all these cases that the means at present known will restore the patient to health, and death will, in spite of all our best efforts, sometimes take place; for this affection may be reckoned as one of the forms of syphilitic disease which terminates the lives of those wretched women who have devoted their youth to prostitution, notwithstanding repeated and severe attacks of syphilis in its most aggravated form.

Superficial ulceration of the tongue occurs either in the form of patches or fissures, the former being most commonly found on the surface, and the latter near the edges of the organ, but also frequently on its surface. These ulcerated patches of the tongue occur chiefly nearer the root than the apex, and are generally more on one side of the mesial line than the other; they present an irregular, whitish, bald surface, which appears to be more smooth than the surrounding parts, in consequence of the loss of the papillæ. These spots vary in size from that of a bean to that of a shilling, are of a roundish form, and are sometimes surrounded by a depressed line, marking their separation from the healthy part of the tongue. These ulcers sometimes appear raised, on account of the subjacent thickening of the tongue, and thus resemble to a certain degree condylomata of the external organs; they are occasionally accompanied with inflammation of spots of the tonsil, and mucous membrane near those parts, resembling somewhat the spots of the tongue.

The other form of superficial ulceration consists in fissures, which occur very commonly along the edges of the tongue, at other times in one or two spots on its surface, whilst occasionally the edges and whole upper surface of the organ are thickly covered with fissures, the surface of the tongue between these cracks presenting a raw and thickened appearance. These affections of the tongue rarely occur singly, and are generally accompanied with other symptoms of syphilitic disease.

The patches of ulceration are much more curable than the fissures, and in general yield to the same plan of treatment which is employed for the removal of the accompanying disease. The accompanying symptoms are generally such as are benefited by the employment of mercury, being commonly fissures of the lips and scaly eruption of the skin: when, however, no other

symptoms of syphilitic disease exist besides this affection of the tongue, the employment of mercury in small quantities, with attention to the health, appears to be the best plan of treatment.

The tongue at times presents along the part of the edge near the apex, and in more severe cases along the entire edge on both sides, a series of ulcers, so that this part appears alternately indented and raised, presenting what might be called a castellated appearance. These ulcers present a foul, unhealthy appearance, are destitute of hardness, and are generally accompanied with ulceration of the same character on the inside of the cheek; the pressure of the teeth seeming to act in both cases, and to cause, to a certain degree, the ulceration. The accurate resemblance of these ulcers to those which occur after salivation is very great; they are, however, met with where no mercurial affection exists, when there is neither soreness nor fulness of the gums, and appear as a regular secondary symptom. The employment of hydriodate of potash is followed by rapid benefit in these cases, and is preferable to the use of mercury, which, though attended with benefit, acts more slowly and with less certainty.

The ulcerated fissures of the tongue very commonly heal readily; at other times they heal at first, but recur again several times at distant periods; and in some few cases, where the tongue is raw, swelled, and deeply fissured, all means seem quite insufficient to restore the tongue to a healthy condition. The chance of curing the fissured tongue depends not only on the severity of the disease itself, but also on the other secondary symptoms, which accompany it; so true is this, that a badly fissured tongue, accompanied with mild secondary symptoms, is a much less serious matter than a less severely affected tongue with rupia or phagedænic sores.

The fissured tongue, considered alone, is benefited more by the mild employment of mercury in small doses for a considerable period, than by any other means. The nature of the accompanying symptoms will suggest the propriety, in many cases, of preference being given to preparations of iodine or mercury, but where any doubt exists as to the remedy to be employed, the mild employment of mercury appears to be the best and most certain mode of treating this affection.

The upper surface of the tongue is occasionally the seat of a

well-marked excavated ulcer, occurring as a secondary symptom of the venereal disease. This ulcer is situated near the root of the organ, nearer to the mesial line than the edges, and is often of the size of a shilling or sixpence before it attracts the particular attention of the patient. The surface of the ulcer is deeply excavated, and covered with a firm yellow substance soaked with matter, whilst it is surrounded by thin sharp edges, which are not elevated above the surrounding surface of the tongue, but lying on the same level are again surrounded by a somewhat inflamed portion of tongue, which is often more or less deprived of papillæ, and thus rendered quite smooth. This ulcer is not very painful, nor very rapid in its progress, appearing to gain the size of a shilling in about six weeks from its commencement. Of three patients in St. Bartholomew's Hospital labouring under this affection of the tongue, one had recently suffered from a scaly eruption; the other two, however, had no secondary symptom; one, indeed, was still labouring under primary disease.

The employment of iodine in this affection of the tongue is attended with very little benefit: some improvement, indeed, does take place, but it is slight, and very slow. Mercury, however, given internally in small doses, so as to produce a slight affection of the gums, exercises a most marked influence over this kind of ulcer, and converts an unhealthy sore of some weeks' standing into a healthy one, which is sometimes healed within a month. All the three cases above alluded to recovered completely under the mild internal administration of mercury. In one, hydriodate of potash was given for a fortnight, with hardly any benefit, and was then discontinued for the employment of mercury, by which so marked an influence on the ulcer was produced that the patient was discharged well in another fortnight.

There is an affection of the tongue connected with the venereal disease which is very rare. One instance of it occurred in St. Bartholomew's Hospital, under the care of Mr. Lawrence, from which the following account is drawn. The similarity of this affection to the excavated ulcer in some respects, and especially in its mode of cure, has led to placing it here:—

A middle-aged man was admitted, labouring under a scaly eruption, having previously had primary disease; he was also suffer-

ing under a swelling of the tongue, nearly equal to a walnut in size, of extreme hardness, situated near the base of the organ, of an irregular round form, and underlying a portion, the surface of which was nearly destitute of papillæ. The swelling was so large and so inconveniently situated as to impede deglutition and to a certain degree articulation. This swelling had commenced about two years previously without any particular cause, and at the end of a year had reached the size of an almond-shell: from this period it had continued to grow to its present size, being uninfluenced by a short treatment to which he had been subjected for erysipelas of the head.

In this case the employment of mercury was attended with the very best effect. Under its influence the swelling diminished and lost its peculiarly hard character, so that when the patient left the hospital the swelling was reduced to one-third of its previous size. The patient was also seen after leaving the hospital, and was found to be still improving.

The treatment of hernia humoralis is generally of so simple a nature that some apology may perhaps seem to be required for introducing it here. Mercury is, however, frequently used at St. Bartholomew's Hospital in this affection, and with a very beneficial effect.

When the acute part of the complaint has been treated actively for one or two days, and the progress of the disease is decidedly checked, the exhibition of mercury is commenced. This medicine is given in small quantities in a mild form, and continued for some time. The hydrargyrum cum cretâ, in doses of two grains and a half three times a day, is generally employed, and appears to exercise a decided influence on the effusion of lymph; so that the thickening of the cord and induration of the epididymis appear to be much less where this plan of treatment has been steadily followed. The exhibition of mercury in this mild manner is commenced after the ordinary antiphlogistic treatment has been employed, without which, the employment of mercury, even in the form of calomel and opium, and that used freely, is comparatively inefficacious.

This affection in recent cases yields so well to common means,

and the mild employment of mercury, that iodine has not been tried to any great extent. An account of the efficacy of iodine in the treatment of the hardness remaining after epididymitis has, however, been published by M. Eusebe de Salle.* After the employment of leeches and antiphlogistic treatment in the acute stage of the affection, hydriodate of potash was applied to the scrotum, and small doses of iodine were administered internally. Under this plan a marked diminution took place in the swelling, so that the testicle in two or three weeks gradually assumed its natural condition; some small granular bodies, however, remaining in the part.

The venereal swelling of the testicle is not very uncommon, but is still one of the rarer forms of syphilitic disease. The course of this complaint rarely varies, and the period at which it occurs is generally the same. This complaint occurs in two classes of patients: in one, the patients are weak, and have laboured under several symptoms of syphilis for a considerable period; so that this affection may be classed in the same order as the affections of the bones, both from the period at which it occurs as well as from the low condition of the patients themselves. In the other class the patients are in tolerably good health, and labour under this symptom alone. The testicle in this disease is generally enlarged, but retains in a very considerable degree its natural form, marked here and there with a few nodules, firm, somewhat elastic, and accompanied with a slight fulness of the cord, without enlargement of the vas deferens. The scrotum is not affected; it may, however, be doubted whether such is always the case:—A man was admitted under Mr. Lawrence, into St. Bartholomew's Hospital, with an obscure enlargement of the testes, accompanied with numerous firm nodules on their surface; numerous hard cutaneous tubercles of the skin were found on the scrotum. The disease approached more nearly in its characters to syphilis than to any other affection, although such a cause was denied. The man was relieved chiefly by the employment of hydriodate of potash.

The records of surgery illustrate the difficulty of curing this

* Journal Complémentaire du Dictionnaire des Sciences Médicales, Vol. xix. p. 193.

affection by common means, and the readiness with which it yields to the employment of mercury, inasmuch as the testicle of one side has been removed for enlargement connected with syphilitic disease, which recurring in the same form in the opposite gland has been cured with mercury.* This affection yields to mercury in as complete and certain a manner as syphilitic iritis does; iodine also exerts a certain influence on this affection, but not in an equal degree to mercury.

In the great majority of cases the employment of mercury internally and by friction is attended with the cure of this disease; the action of mercury being maintained for a considerable period, and accompanied with decided soreness of the mouth. There is, however, no doubt that although many cases yield to the employment of mercury in this manner, yet that if a mild course of mercury alone be practised, some cases capable of relief even by mercury would remain uncured. Before it can be confidently pronounced that an enlarged testicle is incapable of relief by mercury, it is necessary that the patient should remain at home, that mercury should be decidedly but slowly employed, and that a decided effect on the mouth should be produced. The ordinary modes of employing mercury are sufficient for this, but no plan has appeared to answer so well as the constant application of either the strong mercurial ointment or liniment to the skin of the scrotum,—a plan which has been attended with the most marked benefit in the cases under the care of Mr. Lawrence and Mr. Stanley, at St. Bartholomew's Hospital.

* Dupuytren, Leçons Orales, t. i., p. 48, Bruxelles, 1836; also, Ph. Boyer, Gazette Médicale, No. 48, 1840.

CHAPTER XIX.

SYPHILIS.

EMPLOYMENT OF MERCURY AND IODINE IN VENEREAL AFFECTIONS OF THE PERIOSTEUM, JOINTS, EYE, EAR, AND NAIL.

THE affections of the bones, joints, and periosteum, most commonly met with in connection with the venereal disease, are—

1. Simple general pains.
2. Soft or hard swellings of the bones or periosteum.
3. Rheumatism.

1. Simple general pains. In no form of disease is the employment of hydriodate of potash attended with greater benefit than in cases of dull aching pains in the long bones. In some cases marked relief is felt after a few doses of the medicine have been taken. In the majority some improvement takes place in a few days, and the cases are very rare in which more or less benefit does not arise from it. In the more severe cases of this affection the patients are haggard and weary from pain and loss of rest; they rarely have any marked degree of fever, but often labour at the same time under affections of the throat and skin. The pains under which they labour are dull and constant, with occasionally attacks of severity, especially at night and on the occurrence of any damp weather. The painful parts present rather a degree of fulness than swelling, being covered by a thin layer of firm œdema; so that the naturally flat surfaces of the bones feel somewhat convex, and their sharp edges are blunted. This affection may be accompanied with hard and soft nodes, but often occurs without any affection of that kind.

It sometimes happens, that mercury, opium, hyoscyamus, and

other means, successively fail in affording any decided relief to this affection, and the patient suffers severely until iodine is employed. The hydriodate of potash, in doses of from five to eight grains administered three times in the day, acts often like a charm, and gives a greater degree of relief than any other means. This relief generally continues until the pains are more or less completely removed, and an increase of the dose beyond twelve or fifteen grains of the hydriodate of potash in the twenty-four hours is rarely required. When iodine fails to afford some earnest of future benefit soon after the commencement of its employment, it is not commonly found that any very great benefit follows its exhibition, either in large doses, or after a long continuance of its use.

Since hydriodate of potash has come into general use, venereal affections of the bones and periosteum have been more certainly as well as more rapidly cured, and cases in which the periosteum requires division are now comparatively rare. Yet painful affections of these parts will not always yield to iodine, and there are still a few cases where incisions are necessary, a few more where mercury is beneficial; and every now and then a case occurs in which there are no indications for the employment of incisions, and where neither mercury nor iodine do any good. This last class of cases are very obstinate, and deserve especial notice.

There do not seem to be any very marked indications by which a case of severe pains in the limbs, curable by mercury better than by any other means, can be known, and these cases generally come to be treated by mercury because they have not yielded in any way to the employment of iodine. There are, however, a certain number of cases, and these occurring chiefly in persons of moderately robust health, where all means fail in affording decided relief, until mercury is employed so as to affect the mouth, when the pains rapidly diminish in severity.

The best case for the employment of hydriodate of potash, and that in which its benefits are most marked, is that of a haggard, worn-out, wretched looking man, who has suffered for weeks from dull aching pains in all the long bones of his body, but cannot pick out any one bone as being worse than another. The cases where iodine is attended with least benefit are often just the con-

verse of these, and are met with in persons of good health, who labour under an acutely painful affection of the distal half of a single long bone, accompanied with considerable swelling of the neighbouring parts, with redness of the skin.

The progress of these latter cases may be thus described :—A patient in moderately good health, and sometimes very soon after the cure of the primary disease, complains of pain commencing in the distal extremity of a long bone, accompanied with considerable swelling and redness of the part. There is a considerable degree of fever, with acute pain in the affected part, but no formation of matter. After a short time this affection of the bone and periosteum leaves the part first affected, and creeps higher up, thus gradually advancing along the entire bone, attacking each portion successively with great severity, and causing extreme suffering for ten days or a fortnight. In these cases the hydriodate of potash is not attended with any decided benefit, the application of leeches frequently, and in considerable numbers, being the means chiefly to be relied on, and being followed by slow but complete benefit.

2. Fluid nodes, and soft swellings of the bones, are frequently met with amongst venereal patients, but are much less common than the simple pains just described. The soft nodes occur chiefly as elastic fluctuating swellings on the frontal and parietal bones, covered with a thin and somewhat inflamed skin. This affection may present itself either in this form, or it may be met with, after the bursting or incision of the part, as a foul ulcer, with an exposed scale of dead bone at the bottom. The common nodes which appear on the tibia and ulna are generally of a firm nature, and approach much nearer to a solid than a fluid swelling; so hard, indeed, are some of these swellings, that a careful examination is sometimes necessary, even in tolerably recent cases, before the existence of bone in them can be positively denied.

Fluid nodes on the flat bones, and recent nodes on any bones, admit of complete cure; whilst the pains in old hard bony nodes of many years' standing can generally be much relieved, although the removal of nodes after they are become regularly bony appears to be very rare indeed.

Some of the fluid nodes, by their extreme softness and thinness, seem to be on the eve of bursting, and almost invite a puncture.

So bad, however, is the ulcer resulting from the opening of these swellings, and so complete the cure by milder means, that an exposure of their contents is to be avoided in every way.

In cases of nodes unaccompanied by any acute inflammation (and such an accompaniment is very rare indeed), the employment of hydriodate of potash is attended with the greatest benefit, and deserves trial before any other means are used. The general condition of the patient is frequently improved by its use, whilst the local benefit in the relief to the pain and in the diminution of the swelling is of the most marked kind. Although the employment of iodine is so beneficial when administered internally, yet additional benefit is often derived from the local application of mercury to the affected part. When the node is soft, the application of the strong mercurial ointment on a piece of soft leather, firmly applied to the part, assists materially in diminishing the swelling, and even when the skin is extremely thin the application of the pressure and ointment is not attended with any irritation or ulceration of the part.

3. Rheumatism. Patients much reduced in health, and labouring under phagedænic disease, are very liable to swellings of the knee and elbow joints in connexion with affections of the periosteum. This form of disease is sometimes very severe and accompanied with considerable pain, but yields to the same plan of treatment as the affection of the periosteum. Rheumatism connected with gonorrhœa is a much more painful and severe malady, and in extreme cases presents the characters of the most aggravated articular rheumatism. Rheumatism occurring in connexion with gonorrhœa is, however, free from one great danger. Inflammation of the pericardium has not been described as occuring with it, and affection of the lining membrane of the heart rarely, if ever, occurs with it. Amongst the cases of pure gonorrhœal rheumatism admitted into St. Bartholomew's Hospital, affections of the heart and its membranes have not been found to occur in so marked a manner as to attract attention, when not especially looked for, and in a doubtful manner in one case only when attention was directed to this point. In one case of mild rheumatism in a venereal patient a slight affection of the sounds

of the heart, with pain, was observed; but it was not clear that this affection had not previously existed.

Gonorrhœal may occur under the same circumstances as common rheumatism, and be undistinguishable from it, except by the history rendering it probable that the disease depends on a specific cause. In general this affection is preceded by less constitutional disturbance, and is accompanied with less fever and a much slighter degree of perspiration, than common rheumatism. In these respects this affection is less severe, but in intensity of pain, and especially in difficulty of cure, gonorrhœal rheumatism equals and often exceeds any acute inflammatory affection of the joints, unaccompanied by ulceration or the formation of matter. When the attack of gonorrhœal rheumatism is acute, and resembles ordinary acute rheumatism, the employment of mercury or colchicum, as in common treatment, especially the latter, gives the greatest relief. The hydriodate of potash is very useful in this affection, but its benefit is greatest after subsidence of the general constitutional disturbance in the acute cases; whilst in the cases accompanied by less constitutional disturbance, and in which pain is the prominent symptom, the hydriodate of potash may be employed from the first. Patients with gonorrhœal rheumatism often get so far well that they are prevented more by pain than anything else from moving about, and continue in this condition for some time. The hydriodate of potash is most valuable in these cases; it just relieves the patient in the particular weak point, and enables him to use that strength which pain alone prevented him putting to the test.

The acute form of this disease may thus be reduced to a milder degree, and this latter condition reduced to that of a mere inconvenience: but the complete removal of gonorrhœal rheumatism is often a very difficult matter. Unfortunately the remaining portion is not a latent disease, but it reminds the patient of its presence on every exposure and error, and seems just at last rather to wear itself out than to cease from the employment of any particular means.

Amongst the patients at St. Bartholomew's Hospital two instances have occurred of a weakened condition of one arm, which appeared to depend on a slow inflammatory affection of the parts round the joint, connected with syphilitic affection

of the periosteum. These patients had some symptoms of syphilitic disease, and were relieved of their complaints, and of the pain in the joint to a certain degree, by the hydriodate of potash: the condition of the arm remained, however, the same. The principal points of these two cases were the following:—1. In the winter of 1840-41, a man was admitted under Mr. Lawrence, labouring under an affection of the scalp, with a soft node of considerable size on the forehead, ulcers of the tonsils, and a partially impaired condition of the left upper arm. The arm was partially useless, whilst the motion in the shoulder-joint was impaired and painful. The humerus and parts round it were swelled, the bone itself being painful; the muscles of the arm were smaller than natural. No very clear history of the ailments could be obtained from this man, and the probable cause of the weakness of the arm appeared to be the pain of the upper part of the arm, and neglected use of the limb in consequence. 2. In the summer of 1841, a woman was admitted under Mr. Lawrence labouring under an affection of one arm in a similar manner, and nearly in the same degree, accompanied with some doubtful symptoms of syphilitic disease. No very clear history could be obtained in this case. The woman went out much in the same condition, her arm still remaining useless. She was readmitted in the summer of 1844, in nearly the same condition.

Amongst the patients labouring under syphilitic eruptions, severe ulcers of the eyelids sometimes are met with, which, from the situation in which they occur, require to be cured as rapidly as possible. This form of disease was described by M. Lrawrence in 1830, in the Treatise on the Venereal Affections of the Eye, and from cases recently occurring under Mr. Lawrence's care the following description is taken.

The eyelids are swelled so as partially to close the eye, whilst the conjunctiva is considerably inflamed, not only on that portion which lines the lids, but also on that covering the eyeball. The surface of the conjunctiva is also spotted at times with small yellow dots or vesicles of an opaque white colour, which bursting, form small ulcers with a yellow surface, sharp edge, and surrounded by considerable inflammation. Near the edge of the lid, at the

junction of the cutaneous and mucous membranes, an ulcer forms, not unfrequently arising from one of these pustules. This by its enlargement forms a considerable sore, with a foul unhealthy surface, situated sometimes on a hardened base, surrounded by irregular sharp edges, and occasionally accompanied with considerable œdema: the ulcer may be single, of a large size, and with a foul surface, or, instead of a single large sore, two or three similar ulcers may exist along the edge of the lid.

The employment of hydriodate of potash is beneficial in these cases, and these ulcers heal under its employment; yet the ultimate healing is not very complete, nor is the influence of hydriodate of potash sufficiently great to prevent the occurrence of fresh ulcers whilst the original sores are healing. The employment of mercury appears to exert more influence on this form of disease than that of any other medicine; and under its use, so as to produce soreness of the mouth, the ulcer assumes a healthy appearance, and heals completely, no renewed ulceration taking place either in the parts themselves or in those adjacent to them. In ulcers of considerable size cicatrization is sometimes complete at the end of a month, leaving a much smaller cicatrix, and less destruction of parts, than might at first have been anticipated.

The following case illustrates so well the benefit of both remedies, but the more certain advantage arising from the employment of mercury, that it is inserted here:—

A man, 24 years of age, was admitted under the care of Mr. Lawrence, on December 17th, 1840, labouring under ulcerations of the tarsal edges of the right upper and left lower lids, of small size, of a yellow colour, and accompanied with considerable surrounding redness. There was a circular ulcer on one arm, and the face was marked with pustular eruption. The fauces, velum, and pharynx, were ulcerated: there was also a slight ulcer of the scalp.

The man took the Pil. Saponis c. Opio, to which was added on the 7th day Potass. Iodidi, gr. vj. in Sarzæ Decoct. Co. three times in the day.

Jan. 26th.—He has continued the same plan of treatment up to the present time, and is now leaving the hospital. His appearance is better, and he has much improved in health. The

ulcers of the conjunctiva are healed, their situation being marked by red patches of membrane; a small ulcer has, however, formed on the inside of the lower lid, similar to that existing on admission. The throat, arm, and face, are nearly well.

On Feb. 12th, 1841, this man was again admitted. The left lower eyelid is swelled, so as partially to close the eye. On the conjunctival surface of the lid, near the inferior punctum, and partially implicating the tarsal edge, is an ulcer of the size of a fourpenny piece, with irregular sharp edges, considerable surrounding redness, and a hard basis, which gives to the sore an elevated appearance. The surface of the sore is covered with an adherent matter of a greenish yellow colour. There is also some affection of the throat and face, with an ulcer of the scalp.

Pil. Sap. c. Opio, gr. v. every night. Decoct. Sarzæ Co. three times daily. Hydr. c. Cretâ gr. ijss. three times daily.

Feb. 26th.—The ulcer on the lower lid is partly cicatrized, and presents a healthy surface. No pustules are visible on the inner surface of the lower lid. The pustules of the face are very few in number, and the throat is quite well. The gums are slightly affected.

To continue the decoction of sarsaparilla, and to continue the yellow wash to the head, which lotion was begun on the 20th. To continue the Hydr. c. Cretâ three times daily, this medicine having lately been taken four times in the day.

March 9th.—Made an out-patient. The ulcer of the lower lid is healed; the lower punctum lachrymale is just on the inner side of the ulcer, and appears to be somewhat less pervious than natural. No deformity of the lid exists, except a slight loss of substance, which renders more of the anterior part of the eye visible than natural. The ulcer of the head is quite healed.

The papular eruption of the skin sometimes extends to the conjunctiva of the lids, when it causes great annoyance and pain. The patient under these circumstances complains of pain in the eye, increased by exposure to the light, and accompanied by a profuse flow of tears on the lids being widely separated. The conjunctiva of the globe of the eye is red and very vascular, whilst a slight purple zone is also visible in the sclerotic round the margin of the cornea. The lids are swelled, and on eversion are

found to present here and there a few papular elevations, which very soon form small yellow pustules or ulcers, these being situated most commonly on the inside of the lower lid. These papules are a continuation of those of the skin, and in addition to the inconvenience arising from the inflammation of the part, cause great annoyance by their mechanical irritation; occasionally, however, the conjunctiva is simply inflamed, and does not present any distinct ulceration, or small yellow heads. The inconvenience even in this latter case is considerable, but not at all equal to that accompanying the existence of distinct papules.

This affection causes great annoyance, but is not attended with danger to the eye. The papules form small ulcers, which do not become large, but heal leaving no scar or mark of any kind. One set of papules often succeeds another, and thus the inflamed and painful affection of the eye is kept up for some time. The affection of the conjunctiva generally occurs at or soon after the first appearance of the papular eruption, and not in its later stage. It is also more or less likely to occur according as the skin of the face is affected or not. In addition to the treatment of the eruption, of which this forms a part, the application of leeches to the lower lids is attended with the most decided relief to the pain, as well as to the constant rubbing sensation which the papules cause in the eye. A few leeches generally afford more comfort than any local application.

Iodine and mercury have no particular influence on this affection of the conjunctiva distinct from their general action on the eruption of the skin. Although these means have no decided influence for good on this affection, yet they certainly do no harm, and may be employed if necessary during its existence, for other symptoms of syphilis existing at the same time.

These cases of affection of the conjunctiva generally do well; but such is not always the case. At times they are very tedious, and difficult to cure. After the pustules of the conjunctiva have subsided, and the papular eruption of the skin has become pale and very slight in degree, the eyes remain painful, and extremely irritable; so painful, indeed, on exposure to the light, as to resemble in this peculiarity the extreme irritability of strumous ophthalmia. The whole conjunctiva at the same time is very vas-

cular and swelled, but marked with very few papules, if any. In those obstinate cases, and fortunately they are not common, the patience of both parties is put to a hard trial, for this extreme irritability exists after the subsidence of the acute part of the affection of the conjunctiva, and causes extreme annoyance. The employment of tartar emetic ointment on the nape of the neck sometimes gives more relief than any other means, although the relief from this may be only partial.

Iritis is common amongst the syphilitic patients admitted into St. Bartholomew's Hospital, and is seen in all its stages. The description of the affection is not here introduced, but only a general summary of the effects of mercury, as observed on a considerable number of persons labouring under this affection. The greater number of patients affected with syphilitic iritis labour under rather an acute attack; occasionally, however, a much milder form is met with, resembling rheumatic iritis, and requiring less active treatment. In these cases the patient complains of simple dimness of vision, with watering of the eye, which, on examination, presents a few vessels running towards the cornea on the sclerotic coat, to form a ring of a very pale rose colour round the corneal margin. The motions of the iris are rather sluggish, and the lustre of this structure is less bright than natural. This loss of colour sometimes seems to depend partially on the opacity of the anterior chamber. The degree of fever and constitutional disturbance is so slight as to be hardly perceptible.

In this state the eye will continue for two or three days, the disease not advancing at all, or very slowly. The patients in whom it occurred have been weak feeble persons, and not able to bear well any very active treatment. The employment of a moderate cupping, or a few leeches on the temple, were sufficient in some cases to remove the disease, more especially conjoined with the employment of a blister behind the ear. In some, however, the administration of calomel and opium was required to arrest the progress of this affection, after the other means had proved ineffectual.

Cases of chronic iritis, and iritis lingering in a slight degree after the acute part of the attack has subsided, are admitted occasionally. In some of these cases the disease has gone on slowly,

until the colour of the iris is completely changed, and the edge of the contracted pupil is formed into a flocculent ring, with effusion of lymph to such an extent that useful vision is completely lost.

Amongst the women who devote themselves to prostitution, and men of the lowest class, it is often hard to say which of numerous sores has been connected with the subsequent occurrence of iritis; neither, if they described the supposed cause, are their accounts always correct, on account of the frequency of deceit, and their careless mode of observing even their own ailments. It appears, however, to be a certain fact, that sores with and without hardness are followed by iritis. The patients labouring under iritis are sometimes full and plethoric, whilst at other times they are feeble, and occasionally almost unable to stand. The greater number have only one eye affected, others have first one and then the other, whilst occasionally patients present themselves with iritis of both eyes at once, but not affected first at exactly the same time. The number of relapses after complete cure are few. The greater number have not been treated before admission, although this is not always the case; but the disease has very commonly advanced to the effusion of lymph on admission.

In all forms and degrees of syphilitic iritis mercury appears to be attended with greater benefit than any other medicine, the quantity employed being modified according to the general condition of the patient. With the employment of mercury, cupping from the temples has been employed in many cases, and bleeding from the arm in some few. When the patient was in good health, and the pulse has been full and hard, general bleeding to fainting, employed early, has in some cases been attended with the best results, in reducing the inflammation of the eye, and hastening the action of mercury. The employment of mercury does not render an absolutely thin diet necessary. In some cases meat and even wine are necessary. Now and then, old people, and chiefly women, are admitted with well-marked syphilitic iritis, who are much more advanced in life than in years, and are much reduced by poverty and bad habits. In some of these patients the lymph seems hardly to undergo any change from day to day, until their whole condition is improved by appropriate treatment and a nutritious diet. Under these circumstances the lymph is slowly re-

moved, and the sight restored, but with slight obscurity to vision remaining in some cases.

In the greater number of cases the disease has presented an acute character, and calomel with opium, as producing in the most convenient and certain manner a rapid effect, has been employed. This effect has generally commenced on the evening of the second, or morning of the third day. When the mercurial action has been established before admission, the Hydrargyrum cum Cretâ has been employed to continue it. When the disease has been neglected, and has terminated in a greater or less degree of blindness, or when the acute stage of the disease has passed by, but the affection is still advancing in a chronic form,—even under these unfavourable circumstances, the exhibition of mercury has been attended with the greatest benefit.

The employment, for a considerable time, of small quantities of hydrargyrum cum cretâ in cases of chronic inflammation, and that lingering form which occasionally follows acute disease, has appeared to be attended with the best effects. Amongst the patients in St. Bartholomew's Hospital under the care of Mr. Lawrence, numerous examples of this have occurred, and some of the most marked have been amongst patients labouring under old iritis, even when the disease from its extent appeared hopeless.

The effect of the employment of mercury in syphilitic iritis may be thus described. When the disease has been presented for treatment at an early stage, and before any effusion of lymph has occurred, the iris only having suffered change, and no distinct effusion of masses having occurred, the influence of mercury, accompanied sometimes with blood-letting, has been most marked, and the patient has recovered with a perfect eye. Such is also the general result, if the disease is treated early, even when considerable effusion of lymph has occurred. The age of the effused lymph appears to be much more important than the quantity. The existence of distinct vessels on the lymph, the presence of a streak of a semi-fluid opaque substance in the bottom of the anterior chamber, the relapse of the disease after partial cure, the occurrence of disease in one eye after the cure of the other eye, do not necessarily prevent a cure, and a just expectation may be held out of such cases doing well; the effects of mercury being so

great and so very much more active than those of any other medicine with which we are acquainted.

The value of an eye prevents any experimental proceedings being made as to the efficacy of a doubtful means, where a certain one is already known. On this account iodine has not yet been tried in this affection to any extent. The benefits of hydriodate of potash after the employment of mercury have been mentioned by Mr. Lawrence in the following paragraph in his Treatise on Diseases of the Eye. "In some cases, where mercury has disagreed, or where, after a fair trial, the affection of the eye has not either improved or got worse, I have lately employed, with excellent effect, the iodide of potassium, giving three or four grains in two or three ounces of the compound decoction of sarsaparilla three times a day. The beneficial operation of the change seems analogous to what we observe from the same succession of remedies in certain cases of venereal disease."

In the following case the employment of hydriodate of potash was attended with benefit in diminishing the swelling which resulted from the giving way of the tunics of the eye after long-standing and very obstinate syphilitic iritis. A middle-aged man had completely lost the sight of one eye from long-standing syphilitic iritis, which terminated at last in the protrusion of a mass of lymph through the sclerotic at the margin of the cornea, forming a painful fungus projecting between the lids. This mass was so inconvenient and painful that the removal of it with the knife was considered proper, but previous to adopting this means hydriodate of potash was given at Mr. Lawrence's suggestion, in five-grain doses, three times in the day. Under this plan the parts rapidly decreased in size, and rendered the removal of the swelling unnecessary.

Inflammation of the auditory meatus, with puriform discharge, has been pointed out from time to time by Mr. Lawrence in the wards of St. Bartholomew's Hospital. The same disease has also been mentioned by Mr. Welbank* as occurring with other secondary symptoms; it is also alluded to by Benjamin Bell.† In

* Medico-Chirurgical Transactions, vol. xiii. p. 390.

† A Treatise on Gonorrhœa Virulenta, by B. Bell, 1797, vol. ii. p. 145.

these cases the meatus becomes hot and painful, the external ear also participating in the redness in a less degree, and having a puffy œdematous appearance. The inflammation of the meatus is gradually succeeded by a copious puriform discharge from its lining, which presents an excoriated appearance. This affection occurs in both sexes, and more especially in connexion with the scaly eruption. In Mr. Welbank's case this affection occurred in a person who had contracted a sore which healed under the use of blue-stone, but left some induration. In about four weeks he had severe nocturnal pains, soon followed by slight sore throat and inflammation of the ear. This latter symptom was succeeded by discharge from the meatus of a reddish sordes, and deafness. This affection was cured by the use of mercury.

The plan of treatment adopted in these cases has consisted in the frequent injection of warm water into the meatus to remove the discharge, whilst mild mercurial treatment has been adopted. Under this plan this affection has gradually subsided along with the other symptoms, and the sense of hearing has gradually returned. It does not appear that iodine has been tried in this affection.

This affection is entirely distinct from any severe ulcerative disease which may affect the internal parts of the ear, and which has been described by some writers. Benjamin Bell* alludes to such cases, as well as Itard,† and Mr. Hunter's‡ remarks appear to relate to the same point. This severe affection is stated as occurring in connexion with syphilitic disease, but from the extreme rarity of any such disease it is very doubtful whether these cases do not rather belong to the more common affection of the petrous portion of the temporal bone, occurring especially in strumous persons.

There is an ulcerative affection of the parts round the nail and ends of the fingers, which occurs occasionally in connexion with secondary symptoms, and which is quite distinct from those

* Treatise on Gonorrhœa Virulenta.

† Traité des Maladies de l'Oreille et de l'Audition, par J. M. G. Itard. 1821, t. i. p. 283.

‡ Hunter's Works, by Palmer, vol. ii. p. 420.

irritable ulcers about the side of the nail, which occur from common accidents and injuries.

This affection commences by pain and swelling of the smooth skin at the side of the nail, this being followed shortly by the formation of a small quantity of matter. This secretion of matter is soon succeeded by ulceration of the skin adjacent to it, implicating the end of the finger, and that portion of the cutis which is connected with the formation and growth of the nail. The part first affected gradually heals, whilst the disease extends in a ring of superficial ulceration over the first and second phalanges, at which part it not unfrequently stops under proper treatment. The skin remains red, and presents a tense shining appearance, whilst the finger-joint over which the disease has passed is more or less fixed by the tension of the superficial parts, the junction of the sound and diseased parts being marked at the same time by an accurate line of demarcation. The nail itself is generally more or less affected; in some cases it separates, leaving a foul irritable ulcer; at other times the nail is simply distorted, becoming more flat on its surface, and having its edges turned up. Occasionally the ulceration extends, healing up in the part first affected, whilst at other times it spreads less in extent, but passing more deeply forms an ulcer in the part first affected, and in those immediately adjacent to it. This affection of the nail is separate and distinct in its progress from the primary ulcers which occur from direct contagion; it may be accompanied by pustular eruption, simple inflammation of the fauces, or foul ulceration of the throat.

Two cases of this affection occurred about the same time in St. Bartholomew's Hospital. In one mercury was employed, and the case did well, whilst the other, in which the liquor potassæ arsenitis was used, healed partially, and then again relapsed.

There are three well-marked cases of this disease described by Royer-Collard*, and Lelut†, with other secondary disease, as oc-

* Répertoire Générale d'Anatomie, par Dr. Breschet, tome ii. partie i. p. 131; and tome iv. partie i. p. 136-137.

† Ibid.

curring at the Hôtel-Dieu and at the Venereal Hospital of Paris. In these the disease affected both the toes and fingers, commenced spontaneously, destroyed the nail more or less extensively, and was accompanied with foul ulceration. In one the result of the case is not mentioned, in the other two the disease appears to have gradually ceased under the use of various means, amongst which the local application of calomel and the internal exhibition of the liquor Van Swieten are mentioned.

CHAPTER XX.

SYPHILIS.

GENERAL SUMMARY OF THE RESULTS DERIVED FROM THE EMPLOYMENT OF MERCURY AND IODINE IN THE TREATMENT OF VENEREAL DISEASES.

THE patients admitted into St. Bartholomew's Hospital present primary and secondary venereal disease in all its forms, from the mildest to the most severe, aggravated in many cases by intemperance, bad diet, and a naturally unhealthy situation. The great mass of these patients are not submitted to any previous plan of treatment, such as bleeding, or a course of purging, unless some particular indication exists; in fact, even if bleeding were considered as a necessary preliminary, it would often require omission, on account of the unhealthy condition of the patients. Where mercury is employed for the cure of venereal disease, the object had in view is to produce a slight degree of soreness of the gums, with a coppery taste in the mouth, and also a somewhat increased flow of saliva for a certain period. This soreness of the gums is carried to a decided and somewhat painful degree in those cases where it is desirable to produce a well-marked mercurial influence on the system, but in the great majority of cases a yellow line round the roots of the teeth, with redness of the gums, is thought to be quite sufficient. This effect on the mouth generally commences in about five days, where mercurial frictions are employed every night, and in about seven or eight days where the blue pill is given in five-grain doses every morning and evening.

Ptyalism, when once established, can generally be kept within bounds, the chief risk existing in arriving at the desired point. The existence of salivation, where much mercury is employed, is

attended often with less risk than where this effect does not occur. The greater number of the recorded cases of persons in whom fatal effects of mercury on the nervous system have occurred, have been quite free from affection of the gums and salivary glands. Extreme salivation, however, is a most inconvenient ailment, and reduces the strongest person in a rapid manner. Its effects also do not seem to be always confined to the mere reduction of health, but to contribute their share sometimes in rendering the secondary symptoms more severe. Amongst the patients labouring under the deep phagedænic ulcer of the skin, the primary disease, in addition to having been itself severe, will often be stated to have been accompanied with profuse salivation from exposure to wet and cold after the employment of large quantities of mercury.

There is no guide by which a patient's susceptibility to mercury can be known, unless it has been previously employed. Where salivation occurs rapidly and unexpectedly, the most decided benefit is often produced, though at a severe cost, the ulcers of the throat being seen to assume a healthy appearance, whilst the membrane of the gums becomes suddenly inflamed and ulcerated. Even when salivation occurs from the application of a small quantity of black wash, the most marked improvement has been seen to occur in the sore to which the wash has been applied.

Susceptibility to the influence of mercury is met with much more commonly than resistance to its effect. Those cases, however, in which mercury does not produce any decided action on the mouth are not very uncommon, and unfortunately occur at times in the very cases where the influence of mercury is desired. This disposition to resist the action of mercury, though certainly possessed by some persons, and shewn on each occasion when this medicine is employed, depends occasionally on some mere accidental circumstance. Thus some degree of fever may exist, or diarrhœa may, as it were, carry off the medicine, and prevent its due action. For each case of resistance to mercury many cases of unexpected salivation occur, and the remedies for the latter are much more frequently a subject of inquiry than the causes of the former peculiarity.

Patients labouring under old organic disease of the lungs or kidneys, or those who have been weakened by floodings or pro-

fuse menstruation, bear salivation very ill. Severe salivation is also to be avoided sedulously in many cases of syphilitic ulceration of the larynx, as the swelling of the inside of the mouth materially augments the previous difficulty of breathing.

The state of constitution usually denominated strumous is by no means a positive contraindication to the cautious employment of mercury; if such were the case the frequency of this condition of constitution amongst the lower orders would often prevent mercurial treatment. In patients whose constitution is weak, and presents the common general signs of scrofula, the employment of mercury is sometimes attended with very great benefit, the patients gaining a degree of flesh and strength under its use which they had not previously enjoyed. It is not meant here to include that degree of fatness which is said occasionally to follow a mercurial course, (this may be looked upon as a morbid symptom, and is quite contrary to a sign of health), but that degree of health and strength is meant which renders the patient able to work hard and feel well, as well as enables the important organs of the body to discharge their functions in a healthy and natural manner. Amongst the patients who bear the employment of mercury very ill, large flabby fat people may be reckoned, in whom mercury has been administered for primary disease accompanied with bubo. In these cases the mouth has not become much affected, but considerable fever, of a low kind, accompanied with extreme weakness and wakefulness, has occurred, during which the enlarged glands have suppurated freely, and sometimes with the formation of dark grumous matter in large quantity and widely diffused. The simple abstinence from mercury, and the employment of nutritious food with tonic treatment, have not been sufficient to restore these patients readily to health, and the means which have appeared to be most beneficial have been free exposure to a better air, and a better mode of life.

When mercury is given in the treatment of venereal disease to produce a constitutional effect, it is always desirable that some affection of the gums should be produced, inasmuch as the benefit then derived is greatest, and an accurate estimate may be formed of the action of the mercury. The effect of mercury thus employed is certainly greatest where the affection of the mouth is produced,

but the presence of soreness of the gums is not absolutely necessary. When a considerable effect—as in the indurated sore, and acute syphilitic iritis—is desired, the employment of mercury, without the production of ptyalism, generally does very little good, but in the common employment of mercury in mild cases considerable benefit is at times derived even without any morbid soreness of the mouth.

The benefit of mercury is dependent not only on its effect, but also on the manner in which that effect is produced. Thus although the same effect, namely, mild ptyalism, may be desired in a case of chronic indurated sore, and in a case of acute iritis, yet if the same rapid exhibition of mercury be employed in the former as is attended with such advantage in the latter case, but little benefit will occasionally be derived. When the processes of disease are acute and severe, the part affected valuable both as regards its form and use, and the nature of the disease such as yields readily to mercury, that medicine should in general be employed boldly, and with the object of producing its effect quickly; when, however, the disease is of some standing, accompanied with but little inflammation, and presents rather the results than the present actions of disease, the slow and gradual exhibition of mercury will generally be found to be the best. A graduated scale might be made, in which cases requiring the rapid exhibition of mercury might be placed at the top, and those benefited chiefly by the slow employment of mercury at the bottom. Acute syphilitic iritis would be very near the top, and chronic iritis would be very near the bottom; but the great mass of disease would come nearer the upper than the lower part of the scale, which would have the simple primary ulcer as its central point.

The primary indurated, and the rapidly spreading phagedænic ulcers, the indurated cicatrices of old sores, and the glandular swellings accompanied with induration, but with very little surrounding inflammation, are benefited so much more by mercury than by any other means, that the use of mercury is in these cases, if not necessary, at least most advisable. The same remedy, though less beneficial in the chronic form of bubo and ulcer, which lasts for months, and sometimes for years, is attended at times with success, and affords more chance of relief than any other means. The

cautious employment of mercury in the treatment of a great mass of superficial sores and simple glandular swellings, whether suppurating or not, is attended with no danger, and leads to a good general result by curing a certain number of cases which simple means hardly touch. In acute inflammation of the glands, in acutely inflamed irritable ulcers and sloughing phagedæna, the employment of mercury is unattended with benefit, may do harm, and by taking the place of appropriate treatment is to be avoided. In the treatment of warts and condylomata the employment of mercury only needs consideration so far as the disease, of which they may form a part, is benefited or not by that means.

With regard to the benefit derived from mercury in secondary affections the following appears to be the general rule. The scaly eruption, the excavated ulcer of the tonsil, the syphilitic swelling of the testicle, the excavated ulcer of the tongue, the acute ulcers of the edges of the eyelids, iritis, the purulent discharge from the external auditory meatus, and some cases of pains in the limbs, require the employment of mercury in a decided manner. The same remedy may generally be employed in smaller quantity with the greatest benefit in cases of papular eruption unaccompanied with fever, in those forms of the tubercular and pustular eruption which have a tendency to desquamate rather than to suppurate and form ulcers, and also in those cases where numerous small secondary ulcers occur on the body of persons not much reduced in health. The fissured tongue, and the syphilitic ulceration round the nail, are benefited at times by mercury, but not always. The employment of mercurial fumigation in cases of pustular eruption, phagedænic ulcers of the skin, and foul sloughy ulceration of the pharynx, is attended occasionally with the greatest benefit; but it is a hazardous means, and requires the closest watching.

Such is the benefit derived from mercury when employed for the cure of existing symptoms; but another question of equal importance remains yet to be considered. The failure of health, and the occurrence of constitutional symptoms after well-marked primary disease, the occurrence of symptoms of syphilis in married women, and the birth of unhealthy children from women who, themselves well, had married persons supposed to have been thoroughly cured of their disease,—these circumstances point to

some great effect produced on the body by primary disease. Whatever this effect is, experience has shewn that it most commonly succeeds particular forms of primary disease, but that it may succeed to any kind of primary ulcer. However mild may have been the primary disease, or however long a period may have elapsed from its occurrence, there appears to be no doubt that an individual in whom primary disease has once occurred in a clear and decided manner cannot feel sure that at any period of his life symptoms of syphilitic disease may not occur. After a certain period, and after their apparently complete cure, it is most improbable that they will occur, but every now and then syphilitic symptoms have arisen at a very late period when security against them had apparently been gained, if not by medicine, at least by lapse of years. A small syphilitic sore may have just as inexplicable and great effect on the body as the simple vaccine pustule has, and though the effects may be diminished in a few years in the former, and more slowly in the latter case, yet the effects of either one or the other may be continued through a whole life: when such is the case, there can be no need to account for the labour with which the influence of any medicine, in preventing the occurrence of secondary symptoms, has been studied; or to wonder that the influence of mercury in curing primary disease has attracted less attention than its power in preventing the occurrence of secondary symptoms.

Although secondary symptoms may follow any sore, yet certain sores have been found to be followed by them more commonly than others. The hard primary ulcer, surrounded and preceded by induration, seems to have been universally described as the sore most commonly followed by secondary disease. Next in order may be reckoned the simple and foul phagedænic ulcer, whilst the simple sloughing sores and sloughing phagedæna are more rarely followed by secondary disease than any other ulcers. In the description of each sore the result of the employment of mercury, so far as the cure of the existing disease is concerned, has been detailed; the propriety of employing mercury as a preventive means still, however, remains to be here considered.

The complete cure of the primary disease, even to its remains, and the maintenance of the general health, are the two most

important means in preventing secondary disease, but the longer the primary disease lasts, and the more the health is reduced, the more certain also are secondary symptoms, and the worse will often be their character. On considering the various forms of syphilitic disease which are met with at St. Bartholomew's Hospital, it certainly appears that the mercurial treatment adopted in the case of indurated and some forms of superficial primary ulcers exercises a decided influence in lessening the chance, as well as the severity, of secondary disease, but that mercury has very little influence in preventing the occurrence of phagedænic disease when there is a natural or accidental disposition to it. Although mercury in the phagedænic disease appears to exercise so little influence in preventing secondary disease, yet cases are admitted from time to time in which the employment of very large quantities of mercury for the primary affection has seemed to render the secondary phagedænic disease more severe. That secondary symptoms will *never* occur when mercury has been employed for primary disease in a complete and proper manner, does not appear to have been ever stated by those who have treated large numbers of patients for many years. The fact evidently is, that, with every precaution, secondary symptoms will sometimes occur, and cannot be always prevented. The disease will sometimes run its own course, and no means will do more than relieve the symptoms as they arise.

The great mass of patients treated for primary disease by the careful employment of mercury, at St. Bartholomew's Hospital, do not return again for secondary disease, neither are the greater number of patients with secondary affections those who have been treated carefully with mercury for primary disease; the cautious employment of mercury certainly not causing or aggravating the secondary disease, but on the general view seeming to prevent it to a certain degree. The general result of the employment of mercury in fact being, that a great mass of primary disease is thus most readily cured, that secondary disease is to a certain degree less common, and that when a patient labours under forms of secondary disease to be treated with mercury, that the employment of mercury in such case cures the existing secondary disease, and

MANCHESTER MEDICAL SOCIETY

reduces the probability of its recurrence in a great degree, as compared with the result of any other treatment.

Another question may still be asked. Is there any condition of body produced by primary disease, which, though not manifested by apparent symptoms, is yet liable to display itself suddenly from accidental failure of health, or other causes? In fact,—May a person who has laboured under primary disease carry about in himself the seeds of disease, which may be latent for years, but break out at any period? Such, undoubtedly, may be the case. It can be shewn to be the case with women, and mercury has been tried in such cases with the greatest benefit.

The following table exhibits a list of cases in which the morbid condition of the woman's health was shown by the birth of unhealthy children, the mother's health in some cases being good, and in other instances slight symptoms, or none at all, of present syphilitic disease existing. Yet in all, that morbid condition of health, whether symptoms of disease existed or not, was relieved in the most marked degree by mercury; and after its employment, women to whom a healthy or live child was unknown, have produced living and healthy infants. Some of the cases are here related:—

CASES.	ATTENDANT CIRCUMSTANCES IN PREVIOUS PREGNANCIES.	TREATMENT EMPLOYED.	RESULT.
No. 1, *. Woman	Who had just had a dead putrid child, and had previously had several dead children. Despaired of having any children	As there was suspicion of venereal taint, the husband and wife were kept separate, and treated with mercury	A living child was born in due time after the mercury had been discontinued
No. 2, *. Woman 1812	Delivered of a putrid child in the seventh or eighth month, and who had previously had two children born dead	So much venereal taint was discovered that it was recommended that they should submit to a course of mercury	
Same Person, 1813	Has been treated with mercury, but not so long as necessary; she was again delivered of a putrid child at the eighth month		
Same Person, 1814		Has been under the care of Mr. Colles, and attended fully to his directions	Delivered of a living child, and has had several living children since
No. 3, *. Woman	Who had been delivered of a dead child at 8th month, the husband of the woman having recently laboured under the venereal disease, which had been cured	No venereal symptoms were detectible in the parents; they were however treated with mercury	In the following year she was delivered of a living child, and has had several living children since
No. 4, *. Woman	Who had two dead children in the seventh or eighth month	She had contracted the disease by suckling a venereal child, and was supposed cured. She was now treated with mercury	Has had several healthy children since
No. 5, *. Woman 1818	In good health, who had been delivered of her first child at the eighth month, dead and putrid	Her husband had been diseased before marriage	

* Transactions of Association of Fellows and Licentiates of King and Queen's College of Physicians in Ireland.—Letter from Dr. Beatty, vol. iv. p. 31.

CASES.	ATTENDANT CIRCUMSTANCES IN PREVIOUS PREGNANCIES.	TREATMENT EMPLOYED.	RESULT.
Same Person, 1819	Has been confined of her second child at the eighth month, dead and putrid	Treated now with mercury	Delivered in 1820, of a living child.
No. 6*. Woman	Had a dead child at the seventh month	She had her breasts drawn previously by a woman with sores on her mouth; this was followed by enlarged axillary glands, and sore throat	
Same Person, 1773	She was delivered of a child at the full period, which she suckled; in six weeks scaly eruption appeared on the child, which was removed by hydr. c. creta.	The mother was now treated with calomel	In 1775, a healthy child was born; some blotches appeared, however, in a few weeks, which were removed by mercury
No. 7†. Woman	Whose first child had been born dead before confinement	She had laboured under venereal disease before her first confinement, and was salivated during the third month of her second confinement	Delivered of a healthy child at full period
No. 8‡. Woman	First child died of syphilis. Second child born dead, with traces of syphilis. Third child was born alive and active; in some weeks, however, labouring under syphilitic pustular eruption, and sore on mouth	After the birth of the third child the woman had fissures on the arms, and a white secretion from the vagina. The husband and wife were now treated with calomel and frictions	The next child was born well, and continued well when seen at the end of four months

* Medico-Chir. Transactions.—Paper by Mr. Hey, of Leeds, vol. vii. p. 545. † Mauriceau, Traité des Maladies des Femmes, vol. i. p. 184. 1721.

‡ Hufeland's Journal, Bd. 20, Stück 3, p. 31. 1805.

CASES.	ATTENDANT CIRCUMSTANCES IN PREVIOUS PREGNANCIES.	TREATMENT EMPLOYED.	RESULT.
No. 9*, Woman	Who had borne at different times four children, all dying with pustular eruption and other marks of syphilitic disease; a fifth child was born subsequently, which exhibited syphilitic disease at the end of three or four months; this child was, however, cured with mercurial treatment	The parents were now submitted to an anti-venereal treatment	Four children have been born since, all of which have lived ten years, and enjoyed perfect health
No. 10†, Woman	In her third pregnancy was delivered of a child labouring under syphilis	The woman had, at the end of this pregnancy, mucous pustules on the genital organs, alæ nasi, angles of mouth, eyebrows, and scalp. The child and mother were treated successfully with mercury	A fourth child was born subsequently, which as well as mother continued quite well, when last seen
No. 11‡, Woman	Whose first child was taken ill one month after birth with pustules and emaciation, communicating ulcers to nurse's nipple. Died rapidly Second child, died of starvation, other causes than syphilis Third child taken ill with ozæna, pustules, and swelled glands, removed by mercury	The mother not having had any regular treatment, was treated thoroughly with mercury for three months to the fifth and sixth month of pregnancy	A fourth child, who has continued quite well for seven years, her only illness being imperfect dentition for some time

* Beaumès, Précis théorique et pratique sur les Malad. Vénériennes. Prem. partie, p. 171.

† Guenier, Journal de Médecine de la Loire Inférieure. Onzième Volume. 1835, p. 91.

‡ Pelletan, Clinique Chirurgicale. Tome premier, p. 249.

The only preparation of iodine for internal use which I have had the opportunity of seeing employed on a large scale is the hydriodate of potash: the iodides of iron and mercury have been employed in some few cases of syphilitic disease at St. Bartholomew's Hospital, but the result of these cases has not been remarkable for such a degree of benefit, as compared with the other means, as to induce the employment of these preparations on a large scale. The ordinary dose employed is four or five grains given three times in the day, this quantity being increased occasionally by a few grains, but rarely by any considerable addition. Although hydriodate of potash is generally employed without giving rise to any bad symptoms or annoyance, yet such is not invariably the case, and the employment of a moderate dose at first, reduces the probability of the occurrence of any accidents, at the same time that it is generally sufficient to answer the desired purpose. The effects of iodine are generally manifested soon after the commencement of its use, and an early earnest of benefit will occur in most cases, where the advantage is gained by the employment of iodine. It is remarkable how rarely any bad effects are produced at the present day by the employment of iodine, as compared with the employment of the same medicine on its first introduction. In addition to the better knowledge of the action of this remedy gained by experience, and to the establishment of a more uniform preparation by its introduction into the Pharmacopœia, the hydriodate of potash has become the standard form, instead of the tinctures and preparations of the pure substance. The employment of hydriodate of potash, into the composition of which a considerable quantity of alkali enters, seems to produce the full effects of iodine without any practical risk, provided a moderate dose, and a pure preparation, be employed, at the same time that the patient is carefully watched during the employment of the medicine.

There does not appear to be at present any very clear proof of the efficacy of iodine in primary disease. This medicine, it is true, has been only partially tried; but the want of any repetition of these trials is a strong argument against the good result derived from its slight use. The greatest advantage derived from iodine in primary disease is seen in the treatment of patients, who from

large quantities of mercury, or long standing primary disease, to which secondary symptoms may even be added, are reduced in health. To such the employment of iodine is certainly beneficial, and aids in restoring them to moderate health. The foul condition of some superficial sores is at times relieved by the employment of iodine, but the local application of the tincture to parts in which considerable swelling and inflammation exist, is sometimes attended with serious injury.

This small benefit derived from the use of iodine in primary disease is, however, quite compensated for by the advantage gained from its employment in secondary affections. The painful affections and swelling of the bones and periosteum, gonorrhœal rheumatism unaccompanied by much fever, single foul phagedænic sores, and large phagedænic sores scattered over the body, are relieved by iodine in a more rapid and certain manner than by any other means. Ulcers of the skin, from previous venereal eruptions of any kind, occurring in patients of reduced health, but more especially those following the tubercular and pustular forms, and the conical crusts of rupia, are healed by the internal administration of iodine. The same means have also been found useful after the employment of mercury in the treatment of iritis, as well as in the removal of the protrusion of lymph, which in some cases of iritis perforates the sclerotic at the margin of the cornea. In the papular and scaly eruptions sufficient benefit has followed the employment of iodine to recommend its use, where mercury is objected to, but not enough to render its adoption advisable in preference to that remedy.

Such are the principal individual symptoms which are relieved by iodine; but the bare enumeration of them conveys but a faint idea of the value of this remedy. These symptoms are some of the most obstinate and serious which occur in syphilitic disease, and which are relieved but little by mercury; these, in fact, are the affections for the cure of which the most varied remedies have been introduced at various periods, all of which have enjoyed more or less reputation. The employment of iodine has, however, been attended with greater and more uniform success than any other remedy, except mercury, which has ever been introduced for the treatment of venereal diseases. Those affections which yield

the least to mercury, and that condition of health which succeeds to long standing disease and to the employment of very large quantities of mercury, yield to iodine in the most marked and decided manner. So great, indeed, is the improvement from the employment of iodine in some of the cases where large quantities of mercury have been used, that the fact of mercury having been employed to excess may sometimes be considered in itself as a recommendation for the administration of iodine. In the great majority of cases some distinct indication may generally be found for the employment of any particular medicine, and any administration of a medicine without a particular reason can be avoided. Such, however, is not always the case, and amongst the means which are effectual in restoring persons to health who have laboured under the venereal disease, and who still carry about with them just enough ailment to make them invalids, but not sufficient to render them ill, iodine is sometimes employed from want of any thing more likely to do good. In such cases its employment is often followed by gradual improvement. It cannot perhaps be said that they are cured by iodine; but, what is equally satisfactory to the patient, they take iodine and get well.

When iodine agrees and does good, the patient feels better and stronger, the appetite is often much increased, and there is a considerable increase, after its employment has been continued for some time, in the flow of urine. When this medicine disagrees, chills not amounting to rigors are felt during the day, with occasional flushings, and the formation of pustules here and there on the face and body. In some persons a small quantity of the hydriodate of potash acts violently on the mucous membrane, the patient, in fact, being affected all at once with a violent cold, accompanied with watering of the eyes, running at the nose, and a giddy sensation in the head. This peculiar effect is sometimes seen in cases where the full benefit of iodine is produced. Diarrhœa is occasionally produced by the use of hydriodate of potash, but does not assume any severe character.

Salivation is described as occurring occasionally in consequence of the use of iodine. The employment of mercury previously, of aperient pills containing mercury, of black wash, or the presence of mercurial fumes in the same ward, render many cases

very doubtful, especially when the facility with which some patients are affected by mercury is borne in mind. If such cases of salivation from iodine are only considered as proved, when these precautions are taken, their number is very materially diminished; yet there are still a certain number of cases in which the salivation appears to have depended on the employment of iodine, and not to have been distinctly connected with other causes; the most marked instances of this are related by Dr. Clendinning *, Dr. Buchanan † of Glasgow, Mr. Forbes Winslow ‡, Mr. Wallace § of Dublin, who has observed it in a child only four years old, and Sir F. Smith ||. This form of salivation appears to consist more in a simple flow of saliva, and less in an affection of the mouth, than where salivation takes place from mercury. In the two cases recited by Sir F. Smith the salivation is described as being destitute of the peculiar fœtor usually accompanying mercurial salivation; the mouth free from any ulceration, and the ptyalism apparently consisting in a simply increased secretion of the salivary glands.

Although iodine produces salivation, it has been used in Germany as a powerful remedial means in removing mercurial salivation; the results of this plan of treatment have been accurately described by Kluge of Vienna, and Knod of Aschaffenburg ¶: the iodine is said not only to benefit the ulceration of the mouth, and lessen the flow of saliva, but also to relieve rapidly the pain in the mouth. Dr. Knod at first administered this remedy in the quantity of two grains daily, and subsequently increased it. Latterly, however, he employed it in larger doses, and employed four, six, or even eight grains daily from the first.

Amongst the various affections resulting from the employment of hydriodate of potash, Dr. Laurie, of Glasgow, has described

* Med. Gazette, vol. xv. p. 869.

† Med. Gazette, vol. xviii. p. 522.

‡ Med. Gazette, vol. xvii. p. 400.

§ Lancet, 1835-36, vol. ii. p. 9.

|| Dublin Journal of Med. Science, No. 54, vol. xviii. p. 453.

¶ Miscellen. Prakt. Inhalts. Hufeland's Journal, v. d. Pract. Heilkunde, v. lxxiv. part 5, p. 29. Also Med. Zeitung des Vereins fur Heilkunde in Preussen. 2ter Jahr. N. 5.

acute attacks of pain in the head, papular eruption of the skin, sudden collapse terminating fatally, and acute suppuration of the parts round the trachea. The dose of hydriodate of potash employed in those cases was small, and produced its effects after the medicine had been employed only for a short period*. Hemiplegia with an oscillating motion of the eyes, which slowly subsided, and purpura, have also been mentioned by Mr. Wallace as arising from the employment of the same medicine†. Dr. Budd‡, of Bristol, has also mentioned a red erythematous eruption occurring symmetrically on the body and limbs, commencing about the fourth day of the employment of hydriodate of potash, and ceasing on the omission of that medicine.

* Med. Gazette, vol. xxvi. p. 588.

† Lancet, 1835-36, vol. ii. p. 9.

‡ Medico-Chirurgical Transactions. Second Series, vol. vii. 1842.

MEDICAL SOCIETY.

INDEX.

PAGE

Abscess round fractured ribs 30
— over hernial sac 8
— connected with bladder 167
— after parturition 188
— of brain 70
— behind pharynx 173
— in iliac fossa 188
— connected with urinary and digestive organs .. 190
— near the knee-joint 198
— diagnosis of, from hydatid 186
— pulsating tumor 186
— a collection of matter connected with empyema 187
— malignant tumor 188
Absorbent glands, venereal affections of 225-231
Air, escape of, into pleura, with pleuritis 28
— without pleuritis 29
Amputation of fingers 128
— wrist 130
— fore-arm 129
— great toe 137
— leg just above the ankle 138
— leg and thigh 130–132
through calcareous arteries 135
adhesion of parts after 132
fulness of stump after 132

PAGE

Amputation, circumstances limiting the choice of situation of 132
division of vessels in 132
retraction of vessels after 133
retraction of skin after 133
importance of front flap in 134
fibula loose after 134
fatal, with cerebral symptoms 137
Anastomosis of post. tib. and peroneal arteries 151
Aneurism of femoral artery 145
Anchylosis of joints 113
— hip-joint 118
Apoplectic effusion in delirium tremens 106
with fracture of the skull .. 81
Appearance of drinkers 97
Appearances (post-mortem) after erysipelas 99
Arm, œdematous condition of 193
Arteria profunda femoris, origin of 155
— obturatrix, origin of 155
Artery crossing hernial sac 8
— divided in hernial operation 8-9
— rupture of 143
— of bulb, unusually placed 171
— wounded in its coats 175
Arteries, enlarged, accompanying a bronchocele 183
— dilatation of 141
— injured in cut-throat 175
— wounded in amputation 131, 134
— of hand, wounded in amputation 149
Auscultation of broken ribs 24
Axilla, carcinoma of 202

Bladder, abscess connected with 167
— suddenly recovering its power in paraplegia .. 166
Blood from ear after injury of head 72
— effused into pleura ? 31
— falling into the larynx 175
Bowel, mortification of, in hernia 12
Brain, abscess of, from injury 70
Breast, carcinoma of 201

PAGE

Bronchitis after fracture of the ribs 25
Bronchus ruptured in a child 28
Bronchocele, with enlarged arteries 183
Bulb, artery of 171
Bulbed sounds, inconvenience of 172
Bursal tumors, treatment of 89
— suppuration of 90
— removal of 91
— form of 91
— on flexor tendons 91
— on extensor tendons 91, 92
— on head of humerus 92
— on end of radius 92
— containing solid bodies 93
— under the tendon of the semi-membranosus muscle 94 94

Calculus, salivary 173
— in urethra 172
— removed accidentally 172
Calomel applied to condylomata 234
Carbuncle, sloughing of 199
Carcinoma, with cyst in the breast 201
— in tongue 205
— in axilla 202
— in angle of orbit 204
Cancer in neck 202
Carotid artery, dilatation of 141
— wounded in its coats 175
Cartilage in knee-joint 120
Chest, simple compression of 27
Children suffocated readily 178
Clavicle, fracture of 62
— displacement of 62
— treatment of fractured 62
Compound fracture, result of cases of, when the propriety of amputation is doubtful 68
— of elbow 68
Compound dislocation of humerus 61
Condition of hospital patients 97

PAGE

Confinement of patients, danger of 177
Condylomata, venereal 232-234
Contracted joint, dissection of 122
Corrosive sublimate beneficially employed 246
Cricoid cartilage, space below 181
Cut throat 174
— varieties of 175
— danger to life of 175
— suicidal and murderous 175
— followed by suffocation 175
— remaining unhealed 176
— with narrow wound 176
— with valvular opening 177
— employment of nutritive enemata in cases of .. 176

Delirium tremens, fatal in eight hours 105
— morbid appearances after 105
— want of morbid appearance in 105
— fatal by apoplexy 106
Deformities consequent on fracture 55
Dilatation of carotid artery 141
— subclavian artery 142
Dislocation of thumb 65
— humerus, with altered length 58
— reduced with difficulty 59
— compound 61
— knee 48
— unreduced 49, 50
— hip 40
— from disease 115
— spine ? 82
— in same person, drunk and sober respectively 61
Distension of synovial membrane of knee 119
Dissection of stumps 139, 140
— a contracted finger 122
— varus pedis 123
— contracted toes 124-127
— a dislocated humerus 59, 60
— patella 50
— a fractured neck of the femur 44

PAGE

Dissection of the bursa under the semi-membranosus muscle 94
— an amputated finger 128
— the space below cricoid cartilage 181
— under the muscles of the knee .. 119
— arteria obturatrix 155
— arteria profunda femoris 154
— sartorius muscle 153
— a fractured leg 52
— an old case of pleurisy 33
Doubtful fractures, result of 43
Drunken trades of London 97
Drunkards, variable appearance of 97
— diseases of 98
— remarkable recoveries of 98

Ear, discharge of blood from, after injury 72
— venereal affection of 275
Ecchymosis occurring spontaneously 152
— recurring spontaenously 152
Elbow-joint opened 67
— compound fracture of 68
Erysipelas rapidly fatal 99
Eye, venereal affections of 268-275
Experiment on dislocation of thumb 66

Fatality of accidents and operations in certain patients .. 99
— of erysipelas 99
Fæcal odour in hernial operation 12
Fauces, venereal affections of 248-252
Femur, dislocation of, sometimes easily reduced .. 40
— in children 40
— irreducible 40
— recurring 42
— changes in stump of 133
Femoral artery ruptured 143
— aneurism of 145
Fever in patients surgically ill 100
Fibula loose after amputation 134
Fibrous structures, venereal affections of 263-267
Finger, dissection of a contracted 122
— amputation of 128

PAGE

Finger, compression of, by machinery 129
Fistula in ano in phthisical persons 108
Flap amputations 131
Fluid from ear after injury of the head 72
— in lumbar abscess, quantity of 120
— in pleura evacuated through bronchi? 33
— in hernial sac, quantity, absence, position, and importance of 10
— characters of, bloody, opaque, or brown 10
— with fæcal odour 12
— running from ring after operation 12
Foot cut through, appearance of 137
Foreign bodies in the trachea 177
Fracture, diagnosis of 53
— pain and œdema accompanying 53
— consequences of 54
— self-adjustment observed after 53
— retention of urine after 163
— occasional difficulty of detecting 43
— severe cases of compound 68
— of skull, patients surviving for various periods .. 77
— including portio dura 78
— with transient symptoms 78
— in a child 79
— with apoplectic effusion 80
— of lower jaw, with affection of the gums 35
— without laceration of the gum .. 35
— with suppuration 35
— in the mesial line 35
— followed by amaurosis 36
— of ribs, auscultation of 24
— consequence of 24
— in old people 26
— rare in children 27
— without injury to the pleura or the lung 30
— with abscess 30
— followed by hæmorrhage 30
— with laceration of the lung 31
— with hæmorrhage into the pleura .. 31
— of pelvis 39
— with lacerated perineum 39

PAGE

Fracture of elbow, compound 68
— clavicle 62
— displacement of 62
— treatment of 62
— of femur, treatment of 45
— in the middle 45
— in the lower third 45
— with dislocation of the patella 46
— in children 46
— into the knee-joint 47
— of the neck of the femur 43
— unaccompanied by eversion 44
— destitute of marked signs 44
— of leg, power of walking with 50
— low down, detection of 51
— position for 51
— irregular union of 52
— of head of tibia, detection of 51
— of fibula 51

Growth arising over an old fracture 55

Hæmaturia of obscure origin 165
— treated with Ruspini's styptic 165
Hæmatocele, arising as such 160
— fluid of 160
— from puncture 160
— rapidly absorbed 160
— source of blood in 161
Hæmorrhage into pleura? 31
— after fracture of rib 30
Hand, œdema of 193
— mortification of 194
— inflammation of 192
— suppuration of 192
— adhesive inflammation of 192
Head, injuries of, with discharge of blood or fluid from ear .. 72
— modified by disease of the mind .. 106
— drunken habits 106
Hernia, cases simulating 2

PAGE

Hernia, complications of 2
— chance of reduction of 1
— permanent cure of, by wearing truss 3
— strangulated, with the truss off 4
— femoral, appearance of sac in 9
— cysts in 8
Hernial patients refusing to be operated on 6
— operated on twice 2
— without hernia, but with hernial symptoms 14
— cases, late period of admission of 4
— bad condition of, on admission 5
— variable characters of 2
— suited to the taxis 5
— not admitting of delay 5
— sac, absence of fluid in 9
— excess of fluid in 9
— fluid between the layers of 9
— abscess over 8
— artery crossing 8
— varicose veins over 9
— operation, artery divided in 8, 9
— propriety of, finely balanced 15
Hip joint, dislocated from disease 115
— disease of, suddenly fatal 117
— anchylosis of 118
— anchylosed, sometimes very useful 118
Hospital patients, condition of 97
— history of, often difficult to obtain .. 96
Humerus, dislocation of 59
Hydrocele, substances used for injection of 158
— puncture of 159
— removal of a portion of scrotum for cure of .. 159
— recurring after cure 159

Ice, application of, in hernia 6
Iliac fossa, abscess in 188
Incisions in centre of perineum 171
Inflammation of hand 192
Iodine, employment of, in primary ulcerations 220, 223, 224, 290
— in affections of the glands of the groin 227

PAGE

Iodine, employment of, in papular eruption 237
— scaly eruption 239
— tubercular eruption 240
— phagedænic ulcers of the skin 244
— deep ulcers of the skin .. 245
— excavated ulcer of the tonsil 252
— affections of the pharynx .. 254
— ulceration of the larynx .. 256
— affections of the tongue .. 258
— hernia humoralis 261
— pains of the bones 263
— nodes 266
— rheumatic affections 267
— ulcers of the eyelids .. 269
— iritis 275
— primary venereal disease .. 290
— secondary venereal disease .. 291
— and primary venereal disease coexisting 291
— after the employment of mercury 292
— dose generally used 290
— if beneficial, accompanied with an early earnest 290
— producing pytalism 292
— curing pytalism 293
— producing diarrhœa 292
— erythema 294
— papules of the skin 293
— pustules of the skin 292
— suppuration round the trachæa 294
— catarrh 292
— hemiplegia 294
— oscillation of the eyes 294

Jaw, lower, fracture of the 35
Joints, acute disease of, terminating in anchylosis .. 113
— disease of fibrous structures of 115

Kidney, influence of diseased 99
Knee-joint, dislocation of, forwards 48
— outwards 49

PAGE

Knee-joint, dislocation of, unreduced 49, 50
— extent of synovial membrane of 119
— subsidence of distended synovial membrane of 119
— space under the muscles above .. 119
— cartilage formed in 120

Laceration of thumb 63
— ligamentum patellæ 47
— perineum 39
Larynx, blood falling into 175
— venereal affections of 255, 256
Leg, fracture of 51
— amputation of 130-138
Liver, hydatids of 186
Loins, abscess of 186
Low condition terminating fatally 102
Lumbar abscess unusually large 120
Lungs, influence of diseased 99

Malignant disease of testis 168
— breast 201
— angle of orbit 204
— tongue 205
— neck 202
— axilla 202
Measurement of dislocated humerus 58
Menses, retention of 163
Mercury, employment of, in superficial primary ulcers .. 209, 210
— indurated primary ulcers .. 213-217
— phagedænic primary ulcers .. 219
— affections of the glands .. 226
— in thin and fat persons .. 229
— condylomata 233, 234
— papular eruption 237
— scaly eruption 239
— tubercular eruption 240
— pustular eruption .. 240
— secondary ulcers scattered over the body 244

PAGE

Mercury, employment of, in secondary ulcers occurring singly 245
— obstinate affections of the skin .. 246
— vesicular affections of the fauces 251
— thickening of the fauces .. 251
— excavated ulcer of the tonsil .. 252
— affections of the pharynx .. 253, 254
— ulceration of the larynx .. 256
— affections of the tongue .. 258, 259
— hernia humoralis 260
— enlarged testicle .. 261, 262
— pains in the bones 264
— nodes 266
— ulcers in the eyelids 268
— iritis 273
— syphilitic affection of the meatus auditorius externus .. 276
— syphilitic affections of the nail .. 277
Mercury, effect of 279
— a visible effect of, desirable 281
— mode of producing its effects 215, 282
— producing ptyalism 279
— susceptibility to effects of 280
— resistance to effects of 280
— patients unsuited to employment of .. 280
— in primary venereal disease 282
— in secondary venereal disease 283
— in preventing secondary disease 284
— as producing a constitutional influence .. 286
Mercurial fumigations in affections of the pharynx .. 253, 254
— in ulcerations of the larynx 256
— with the use of iodine at the same time 253
Mercurial frictions in primary venereal ulcers .. 217
— affections of the absorbent glands .. 226-229
Mercurial local applications to primary venereal ulcers .. 213
— condylomata 234
Mercurial precipitate, poisoning with 200
Mortification of hand 194
— bowel 12

Nutrition by enemata 176
Nail, venereal affection of 277

PAGE
Odour, fæcal, uncertain importance of 12
Œdema accompanying fracture 53
— of arm 193
— hand 193
Olecranon cut through 67
Omentum, condition of, on second operation 3
— adhesion of 13
— enlarged and indurated 13
— strangulating the bowels 17
— treatment of 22
— accidents caused by 22
Operations, preparations of patients for 95
— influenced by patients' condition 96
Opium, danger of, with injury to the ribs 25
Orbit, carcinoma of angle of 204
Organs, abscess connected with urinary and digestive .. 190
Origin of arteria profunda femoris 154
— arteria obturatrix 155

Pain accompanying fracture 53
Paralysis of parts from blows 42
— relieved by local loss of blood 42
— from spinal disease 121
— of bladder 163
— suddenly subsiding 166
Parturition, abscess after 188
Patellæ ligamentum, laceration of 47
Patients' histories 96
Pelvis, strength of 38
— fracture of 39
Perineum, laceration of 39
— incision in centre of 171
Period of death in complicated cases 101
Peronei, action of, in fractured leg 52
Pharynx, abscess behind 173
— venereal affections of 250-254
Phthisis, coexisting with fistula in ano 108
— disease of the spine 110
— ulcer of the rectum .. 109
Pleurisy and pneumonia after fractured ribs 27
— from disease of a rib 187
— dissection of an old case of 33

PAGE

Pleurisy from escape of air into the pleura 28
— absence of, after escape of air into the pleura .. 29
Pleura, hæmorrhage into? 31
Preparation for operations 96
Posterior tibial artery wounded 151
Prostate gland, enlargement of, indistinct 166
— case resembling .. 167
Purgatives, employment of, in hernia 7
Purgative enemata, inconvenience of, in cases of hernia .. 7

Quinine in some affections of the fauces 252

Radial artery, wound of the 149, 151
Rectum, ulcer of, in phthisical persons 109
Removal of tonsils 173
Retention of urine 162
— menses 163
Rheumatic disease lingering in one part 112
— rapidly destructive, with mild symptoms .. 112
Rib, fracture of 24
Rupture of femoral artery 143
Ruspini's styptic 165

Sac, hernial, fluid of 10
Salivary calculus 173
Sartorius muscle, relations of 153
Skin, venereal affections of 235-246
Skull, fracture of 77
— indentation of 77
Spine, injury of, at junction of dorsal and lumbar regions 82-87
Spinal disease, coexisting with phthisis 110
Spirit-drinkers 97
Strangulation of the bowels by the omentum 17
Stumps, changes in 133
— dissection of 139
— adhesion of skin in 132
Subclavian artery, dilatation of 142
— enlarged 183
Suppuration in hand 192
Synovial inflammation, unusually severe 111

PAGE

Taxis, employment of 6
Testis, malignant disease of 168
— venereal affections of 260-262
Thigh, amputation of 130
— fracture of 45
— bone, fracture of the neck of 43
Thumb, laceration of 63
— dislocation of 64
— difficulty of reduction of dislocated 65
— dislocation of, influenced by flex. long. pollicis .. 66
— illustrated by experiment .. 66
Tibia, fracture of 51
Tobacco enemata, employment of 6
Toe, amputation of great 137
Toes, contraction of 124-127
Tongue, growth from 206
— carcinoma of 205
— venereal affections of 257-259
Tonsils, removal of 173
Tracheotomy, space for 181
Trachea, foreign bodies in 177
— matters vomited, entering 177
Truss, risk of removing 4
Tumors, malignant 188
— bursal 89

Ulcers, primary venereal 207-222
— secondary venereal 241-246
Ulnar artery wounded 150
Union of fractures irregularly 52
— cut throat, failure of 176
Urethra, calculi impacted in 172
— ulcerating in fever 167
Urine, retention of 162, 163

Variable period of death 101
Varus pedis, dissection of 123
Veins near mastoid muscle 184
— over hernial sac 9
Venereal primary ulcers, classification of 207

PAGE

Venereal primary ulcers treated with iodine 223
— superficial ulcers, appearance of .. 208
— situation of 208
— treated by common means 209
— mildly with mercury 209
— requiring active mercurial treatment .. 210
— indurated ulcers, appearance of, on admission 211
— characters of 211
— induration remaining on healing of .. 211
— induration of, treated simply 212
— risk of .. 212
— local application of mercury to 213
— length of period for mercurial treatment of .. 215
— mercurial frictions to 217
— phagedænic ulcers, characters of 218
— common means employed in 219
— mercury employed in .. 219
— tardy of healing .. 220
— cases resembling, with phymosis 221
— in persons of bad health 222
— treatment of 222
— affections of absorbent glands co-existing with ulcers 225
— — accompanied with acute inflammation .. 225
— — with simple enlargement 225
— — with thickening of cellular tissue .. 224
— — employment of mercury in 226
— — iodine in 227
— — in thin and fat persons 229
— — of unusually severe character 229
— — of chronic nature .. 231
— condylomata, characters of 232
Venereal condylomata, employment of mercury in .. 233

PAGE

Venereal condolymata, calomel applied to 234
— affections of the skin, condition on admission .. 235
— mixed character of 236
— papular eruption, character of 236
— treated antiphlogistically at early period 236
— with mercury 237
— iodine 237
— scaly eruption, characters of 238
— treated with mercury .. 239
— iodine 239
— tubercular eruption, characters of 240
— treated with mercury or iodine 240
— pustular eruption, employment of mercury in .. 240
— ulcers of the skin, characters of 241
— — influence of mercury in causing, considered 243
— — scattered over body, treated with mercury 244
— — phagedænic, treated with iodine 244
— — single or in small quantity, treated with mercury and iodine .. 245
— — terminating fatally 246
— — treated with corrosive sublimate 246
— affections of the fauces, characters of .. 248
— — with papular eruption .. 249
— — ulcers of the scalp 249
— — superficial inflammmation and ulcers .. 249
— — vesicles 249
— — treated with mercury 251
— — thickened patches of membrane 251
— — treated with mercury 251
— — excavated ulcer of the tonsil 250
— — treated with mercury or iodine 252
— — the pharynx, with simple ulceration 250, 251
foul ulceration .. 250
— — treated with iodine .. 254
— — mercurial fumigations 253, 254

PAGE

Venereal affections of the larynx, characters of .. 255
— — incurability of some cases of .. 257
— — employment of mercurial fumigations in 256
— — iodine in 256
— — tongue, with ulcerated patches 257
— — fissures .. 257, 258
— — foul ulcerated edge 258
— — excavated ulcer .. 258
— — peculiar form of .. 259
— — employment of iodine and mercury in .. 258, 259
— — testicle, (hernia humoralis,) employment of mercury in 260
— — employment of iodine in 261
— — (enlargement of gland,) treated with mercury .. 261, 262
— pains in the bones, characters of 263
— — treated with iodine .. 263
— — sometimes not benefited by iodine or mercury 264
— nodes, characters of 265
— treated with mercury and iodine 266
— rheumatic affections, characters of 266
— — weakness of limb following .. 267
— — treated with iodine .. 267
— affections of eye and eye-lids 268
— ulcers of eye-lids 268
— treated with mercury or iodine .. 269
— papular affection of conjunctiva 271
— — treated with various means .. 271
— iritis 272
— mild form of 272
— chronic 262
— treated with mercury 273
— benefited by iodine 275
— affections of the auditory meatus, characters of .. 275
— — treated with mercury 276
— the nail, characters of 277
— treated with mercury 277

PAGE

Venesection after fracture of the ribs 26
— after injuries of the head 81
— in strangulated hernia 7
— artery wounded in 149
Vessels, division of, in amputation 132
— retraction of 133

Walking, power of, with a broken leg 50
Wound of arteries of hand 149
— radial artery 149, 151
— brachial artery 149
— ulnar artery 150
— post. tibial artery 151
— femoral artery 145
— coats of carotid artery 175
Wrist-joint, amputation at 130

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